BRITAIN'S LEADING HISTORICAL RAILWAY JOURNAL

BackTrack

Vol. 39 • No. 3 MARCH 2025 £5.85

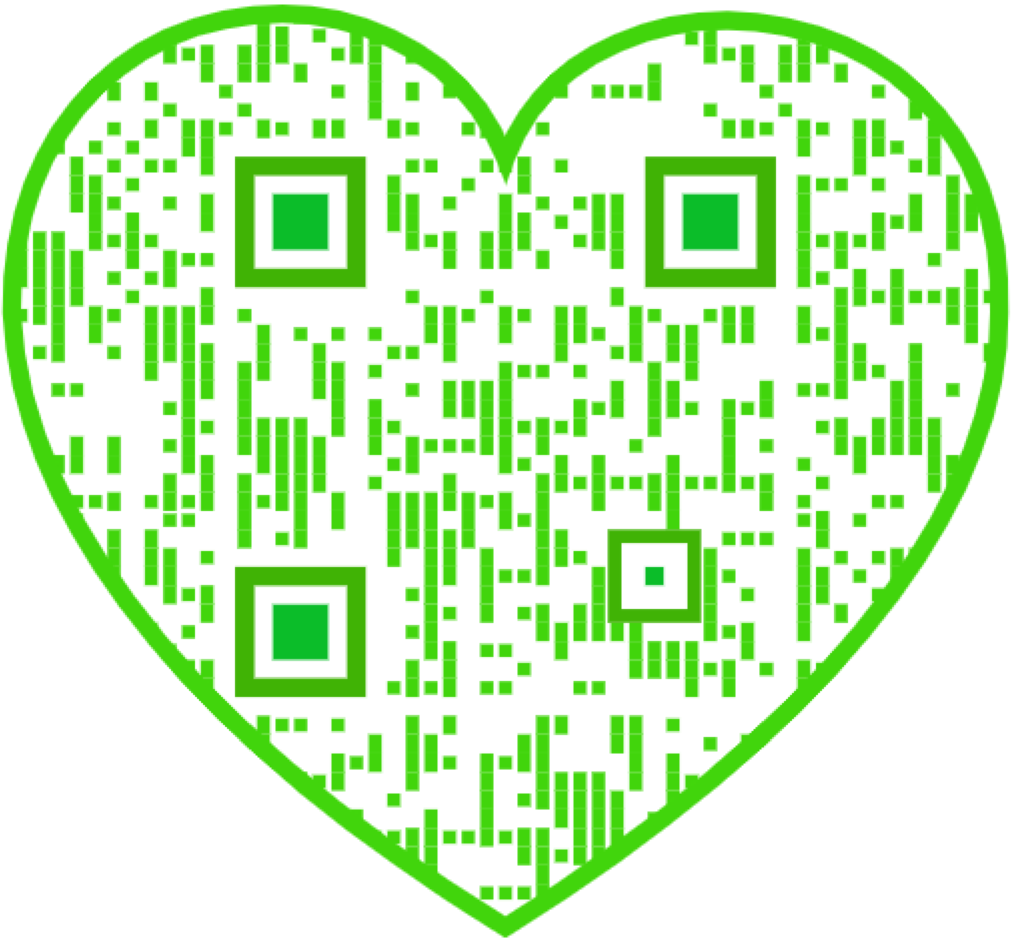
31512
MAIDSTONE WEST

IN THIS ISSUE

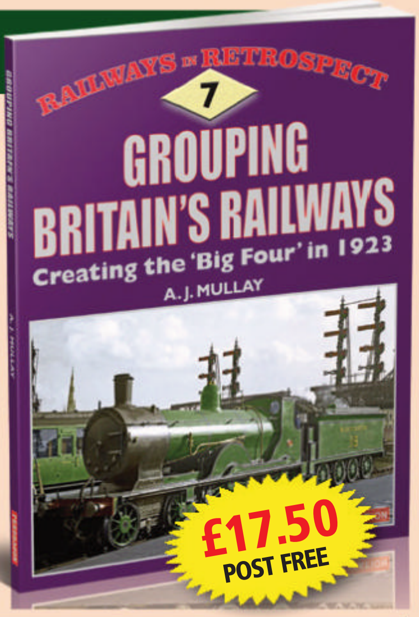
THE HIGHLAND RAILWAY 'RIVER' CLASS
BY RAIL TO THE CRYSTAL PALACE
THE BUILDING OF THE MID WALES RAILWAY
CARLISLE IN COLOUR
THE BIRKENHEAD JOINT LINE
THE NORWICH THORPE DISASTER

PENDRAGON PUBLISHING

RECORDING THE HISTORY OF BRITAIN'S RAILWAYS



AVAILABLE FROM PENDRAGON



£17.50 POST FREE

RAILWAYS IN RETROSPECT No.7

GROUPING BRITAIN'S RAILWAYS

BY A. J. MULLAY **Creating the 'Big Four' in 1923**

"The Grouping was unnecessary, its conception flawed, its planning muddled, and its execution clumsy."

That's the controversial conclusion reached in this new publication from Pendragon Publishing, the first history of the 1923 Grouping to be published in book form for many years. Lavishly illustrated, this book explores why the idea of compact, zonal, railway groups quickly emerged as something quite different, with new rival companies having no territorial rights, and with competition and duplication of routes remaining unchanged. Employing a blend of official archives, personal memoirs and contemporary publications – from The Times to the Boy's Own Paper – this unprecedented development in Britain's transport history is subjected to clinical examination.

88 pages, card covers | ISBN: 978-1-899816-22-4

BackTrack

BackTrack Cumulative Index to Volumes 31-35

COMPILED BY TERRY PENFOLD

£7.50 inc. postage (UK only)

THE BackTrack CUMULATIVE INDEX TO VOLUMES 31-35

- In 2012 we brought you our Cumulative Index to Volumes 1 to 25.
- In 2017 came the supplementary index to Volumes 26-30.
- In 2022 we brought you up to date with what has been happening in Backtrack over the last five years...

Now you need the Cumulative Index to Volumes 31-35, 2017-2021!

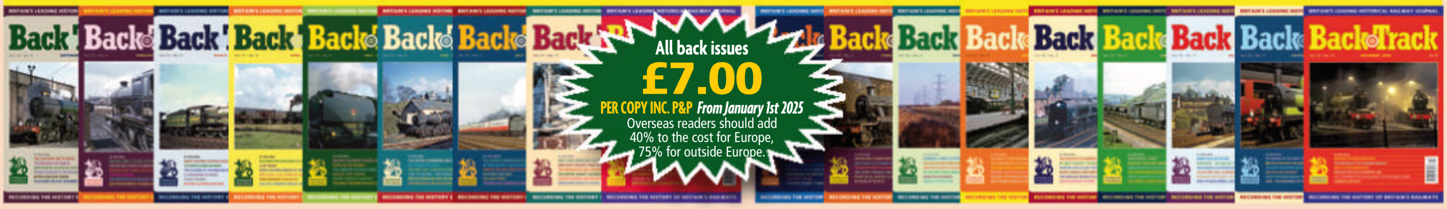
12 pages containing over 5,000 listings, cross-referenced under 60 sub-headings, to help you find that subject you're looking for.

The previous Cumulative Indexes are available on our website: www.pendragonpublishing.co.uk

BACK ISSUES

The following back issues of BackTrack are available:

Vol.33 Nos.1–12	**Vol.35** Nos. 3-12	**Vol.37** Nos. 1-12	**Vol.39**
Vol.34 Nos.1–3, 8–12	**Vol.36** Nos. 1-12	**Vol.38** Nos. 1-12	No.1 onwards



All back issues **£7.00** PER COPY INC. P&P *From January 1st 2025*
Overseas readers should add 40% to the cost for Europe, 75% for outside Europe.

ORDERING

POST FREE IN THE UK

Book and back issue orders should be sent with cheque or postal order payable to Pendragon Publishing at:
PENDRAGON PUBLISHING, PO Box No.3, Easingwold, YORK YO61 3YS
(Overseas readers should pay by International Money Order, adding 40% for post/packing Europe and 75% outside Europe)
Telephone orders with credit card payments can be made on **01347 824397** (Mon-Fri 9am-5pm).

PENDRAGON BOOKS TRADE DISTRIBUTOR

WARNERS GROUP PUBLICATIONS plc.
The Maltings, West Street, Bourne, Lincolnshire PE10 9PH
Telephone: **01778 395046**
E-mail: **tradeaccountorders@warnersgroup.co.uk**

IMAGES SUPPLIED FOR USE IN FUTURE ISSUES OF BACKTRACK - GUIDELINES

In seeking to ensure that reproduction of photographs in either colour (CMYK) or Monochrome which are **supplied to us on CD or DVD media or prints** are of the highest standard your co-operation with the following would be greatly appreciated.

IMAGES SUPPLIED ON DISK - COLOUR AND MONO

To have been drum scanned **from original photographic prints or transparencies** as CMYK images at high resolution (300dpi) with a minimum width dimension of 216mm and saved in either .tiff or .jpeg format. **Scanning on a flat bed scanner can result in loss of detail in both shadow and highlight areas resulting in lack of definition in the whole image.**

IMAGES SUPPLIED AS PRINTS - COLOUR AND MONO

Please **do not** supply images that have been printed on an inkjet printer, even if on a 'photographic paper'. Due to the nature of inkjet prints these images have to be scanned out of focus losing detail and sharpened later resulting in poorer quality images. If prints are to be supplied they must be as **Contone (continuous tone) Prints** produced by the industry standard photographic reproduction method.

IN EVERY CASE where possible, it is far better to supply original image(s) ensuring the continued high quality of Backtrack magazine

Editorial

BackTrack
RECORDING THE HISTORY OF BRITAIN'S RAILWAYS
Vol. 39 · No. 3
No. 407
MARCH 2025

Life in a Digital World

This month's guest editorial comes from Paul Chancellor, *chieftain of the* Colour-Rail Collection, *a vital source of* Backtrack's *colour illustrations. Paul enthuses on the advantages of modern technology and urges 'older' readers to engage with it. He could even be addressing the editor himself...*

There are those of a 'certain age' that have decided that new technology is not for them but there are also many who are simply afraid to try and use it because when it doesn't work for them they don't know how to fix it. Conversely there are many of all ages who have embraced what the digital age can do for them, despite the occasional encounter with unco-operative electrons.

Those with an interest in railways fall into both camps although I suspect that there are a higher proportion of non-adopters in our hobby than for life in general. But those who do not take on the digital challenge are at an increasing disadvantage as it impacts on so many things that an enthusiast might want to do.

Rail travel is perhaps the foremost example of the digital world in action. For bus users many operators offer a lower price if tickets are bought on line. Rail companies have not gone there yet but life is far simpler if buying Advance (lower-priced tickets) on line than it is trying to buy them at a station, where in many cases we still have to deal with a machine rather than a person – and whoever had heard of split ticketing before websites extolled its virtues. A digital application which has changed the lives of many enthusiasts is Realtime Trains. The avid viewer may use it to decide if and when they go to the lineside and can reconstruct a full day of activity from the comfort of an armchair. Since some operators started putting the number of the locomotive or unit online it can even assist in the spotting hobby. Of great value is to be able to look back and find the number of the locomotive that passed your train at speed, which you failed to be able to read – retrospective train spotting! Then there are those that now have CCTV showing every train which passes, along with heritage lines showing all of the comings and goings, although one might suspect that they are as much part of the security system as they are an enthusiast attraction.

Whilst all this is 'nice to have', if you are a technophobe it is the sheer volume of historic data that is accessible which has been revolutionised by the computer. Many historic timetables can be viewed in their entirety whilst at the excellent Sixbells Junction site the date, motive power and route of nearly every railtour can be found. A recent *Backtrack* article explained in great detail how the Railway Correspondence & Travel Society had digitised its famous LNER green guides and such was the success of that project that almost every publication ever produced by the Society can now be purchased in digital form – and that includes every edition of *The Railway Observer.*

Many enthusiasts have been ardent purchasers of railway images for many years. In the past one had to apply to the seller for a list and choose the desired images by trusting the description supplied, only perhaps to be somewhat disappointed when the print arrived. Today the choice is made having viewed the image on-line and the user frequently has the option of a print or digital image, with the latter able to be viewed at some considerable enlargement on the computer screen. While a list might have contained a few hundred views, some website offerings run into six figures.

Related to this subject is the world of digital photography. Taking a picture on film used to cost money, today it costs a fortune, but in the digital world all images come at no cost excepting that of travel and billions have been taken. However, how many will survive is a different matter as the vast majority are lost when a computer or phone dies. *Backtrack* magazine relies heavily on the digital world these days – much rarer are packets of slides and prints arriving by post – all that is needed in many cases are a few clicks to access the image which might be required or the article that has been submitted. Even the world of photo charters has been transformed. Gone is the letter advising of an event. Instead an e-mail is sent and in many cases woe betide the tardy reader, with some events selling out in a couple of hours.

The latest innovation from the RCTS is the modern traction database where the allocation and disposal information for every diesel, electric or gas turbine locomotive ever to run on the national network can be found. Now whilst much of this has been available in print form, the RCTS site, as well as being updated monthly, allows the user to search by number, name, disposal information and perhaps most strikingly by shed, such that one could find the number of every locomotive ever allocated to depot X or just those allocated in a specified month, all at the click of the mouse. Digitisation has transformed both how we go about our hobby and the availability of the vast myriad of facts about railway history – and that is before artificial intelligence gets in on the act to really baffle the unwary.

Paul Chancellor

The retro editor acknowledges that the quality of scanned images, not to mention the quantity of them, has evolved considerably over the last decade. However, contributors who want to send in their illustrations in the form of real photographs or transparencies remain welcome to carry on doing so. In fact, our graphics man quite enjoys working with them! Ed.

Contents

Lost in Kent 132
Frederick Smith's Highland Railway 'River' Class 4-6-0s 134
The Norwich Thorpe Railway Disaster 10th September 1874 138
The Old and the New at Frodingham 143
The Tower Subway 146
'The Advent of Modernity' – By Rail to the Crystal Palace 152
Convening in Carlisle 160
Northern Viaducts in the News 164
The Origins and Building of the Mid Wales Railway 1858-1864 168
More of Tyson's Tours 174
The Birkenhead Joint: The Hooton to West Kirby Branch revisited 176
Irchester Railway Station 184
The Last Post 186
Readers' Forum 189
Book Reviews 190

South Eastern & Chatham Railway Class H 0-4-4T No.31512 in the bay platform at Maidstone West station with a Paddock Wood push-pull train in the early 1960s. (Gerald Daniels)

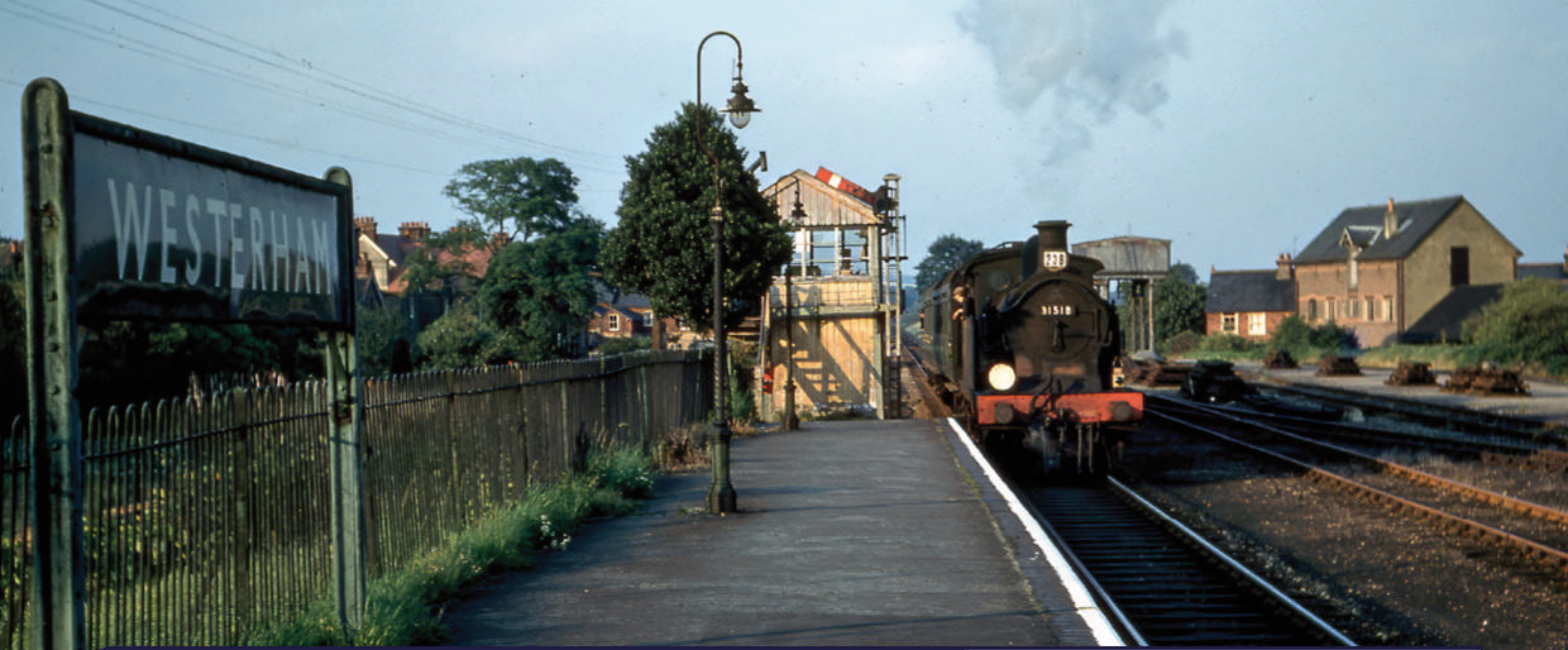
Publisher and Editor **MICHAEL BLAKEMORE** • E-Mail **pendragonpublishing@btinternet.com** • Tel **01347 824397** [Mon.-Fri. 9.00am-5.00pm]
All Subscription Enquiries 01778 392024 *(see inside back cover for details)* • Trade Account Manager **Ann Williams**
Design + Repro **Barnabus Design in Print** • Typesetting **Melinda Trevivian** • IT Consultant **Derek Gillibrand**
Printed by **Elgar Books Ltd., 10 Bradshaw Crescent, Honley, Holmfirth, West Yorkshire, HD9 6EG.**
Newstrade Distribution **Warners Group Publications Plc • Tel. 01778 391135**

Contributions of material both photographic and written, for publication in BACKTRACK are welcome but are sent on the understanding that, although every care is taken, neither the editor or publisher can accept responsibility for any loss or damage, however or whichever caused, to such material. ● Opinions expressed in this journal are those of individual contributors and should not be taken as reflecting editorial policy. All contents of this publication are protected by copyright and may not be reproduced in any form or by any means without the prior written permission of the publishers . ● Copies of photographs appearing in BACKTRACK are not available to readers.

All editorial correspondence to: **PENDRAGON PUBLISHING • PO BOX No.3 • EASINGWOLD • YORK YO61 3YS • www.pendragonpublishing.co.uk**

PENDRAGON PUBLISHING

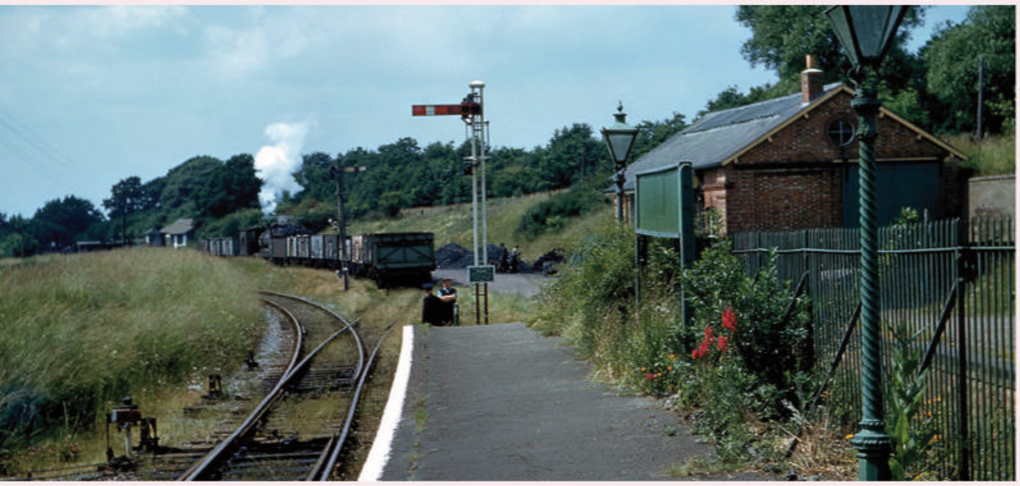
© PENDRAGON PUBLISHING 2025



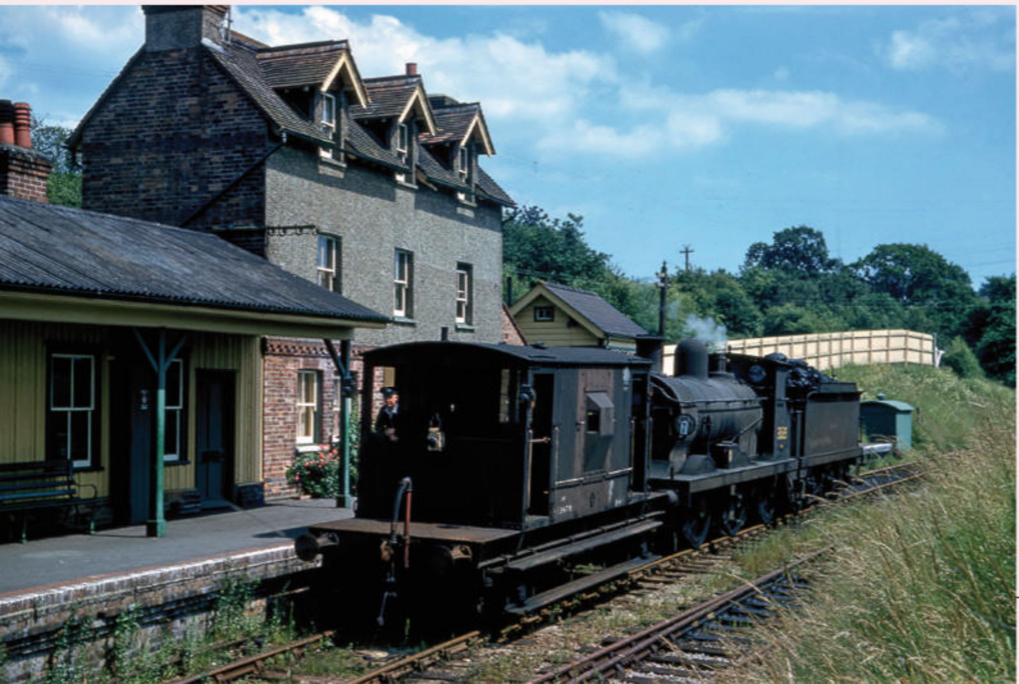
LOST IN KENT

Last calls on the Westerham and Hawkhurst branches recorded by **GERALD DANIELS**

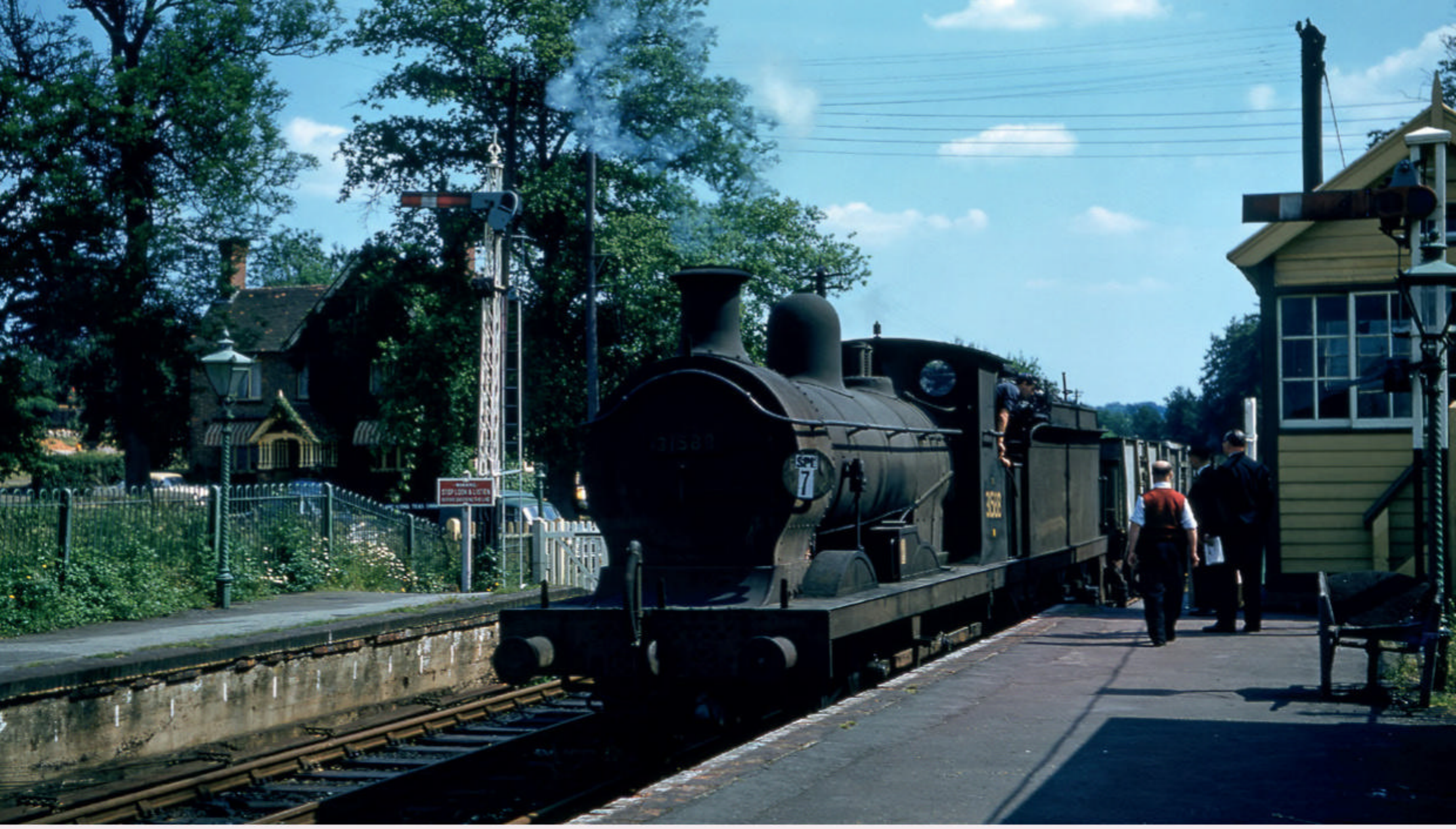
ABOVE: **The 4¾ mile-long branch from Dunton Green to Westerham was promoted by the Westerham Valley company with an opening date of 7th July 1881 and vested in the South Eastern & Chatham Railway during that year. Brasted was the only intermediate station at first but in 1907 Chevening Halt was constructed at a point 1½ miles from the main line junction. It might be presumed that a branch so close to London would have an assured future, but Westerham was only four miles from Oxted which offered a more frequent service of through trains to London Bridge or Victoria. In 1955 declining patronage resulted in the withdrawal of all off-peak services on Mondays to Fridays and Westerham's close proximity to Oxted proved to be its downfall, the last trains running on Saturday 28th October 1961. On that day the usual two-coach push-pull formation sufficed in the morning but in the afternoon BR laid on a seven-coach formation to accommodate 'last day' mourners with Class Q1 No.33029 and Class D1 No.31739 as motive power. Here, Class H 0-4-4T No.31518 is depicted at Westerham station just prior to closure, with the thirteen-lever signal box and water tank in evidence.**



MIDDLE: **The 11½ miles-long Hawkhurst branch penetrated deep into the 'garden of England', an area of Kent famed for its hop gardens, apple orchards and oast houses. The South Eastern Railway (SER) obtained powers for a branch from Paddock Wood to Cranbrook in 1864 but there was little money available for new lines and nothing happened until 1877 when a new local company revived the scheme. Capital was in short supply, construction suffered accordingly, and it was 1st October 1892 before the line opened to Hope Mill (later Goudhurst). The company was clearly not dismayed by the lack of progress and in the meantime had obtained powers for an extension to Hawkhurst which opened on 4th September 1893. Unfortunately, some of the intermediate stations were not conveniently situated for the villages they purported to serve, a classic case being the village of Goudhurst which was a mile distant and 300ft higher than the station. The summer 1957 timetable listed six trains either way on Mondays to Fridays with long gaps around midday and the line was clearly a candidate for closure which occurred from 12th June 1961. The line then fell quiet until a special working ran down the branch to clear wagons on 20th June 1961. In this photograph SECR Class C 0-6-0 No.31588 is seen endeavouring to retrieve wagons from the goods yard at Cranbrook.**



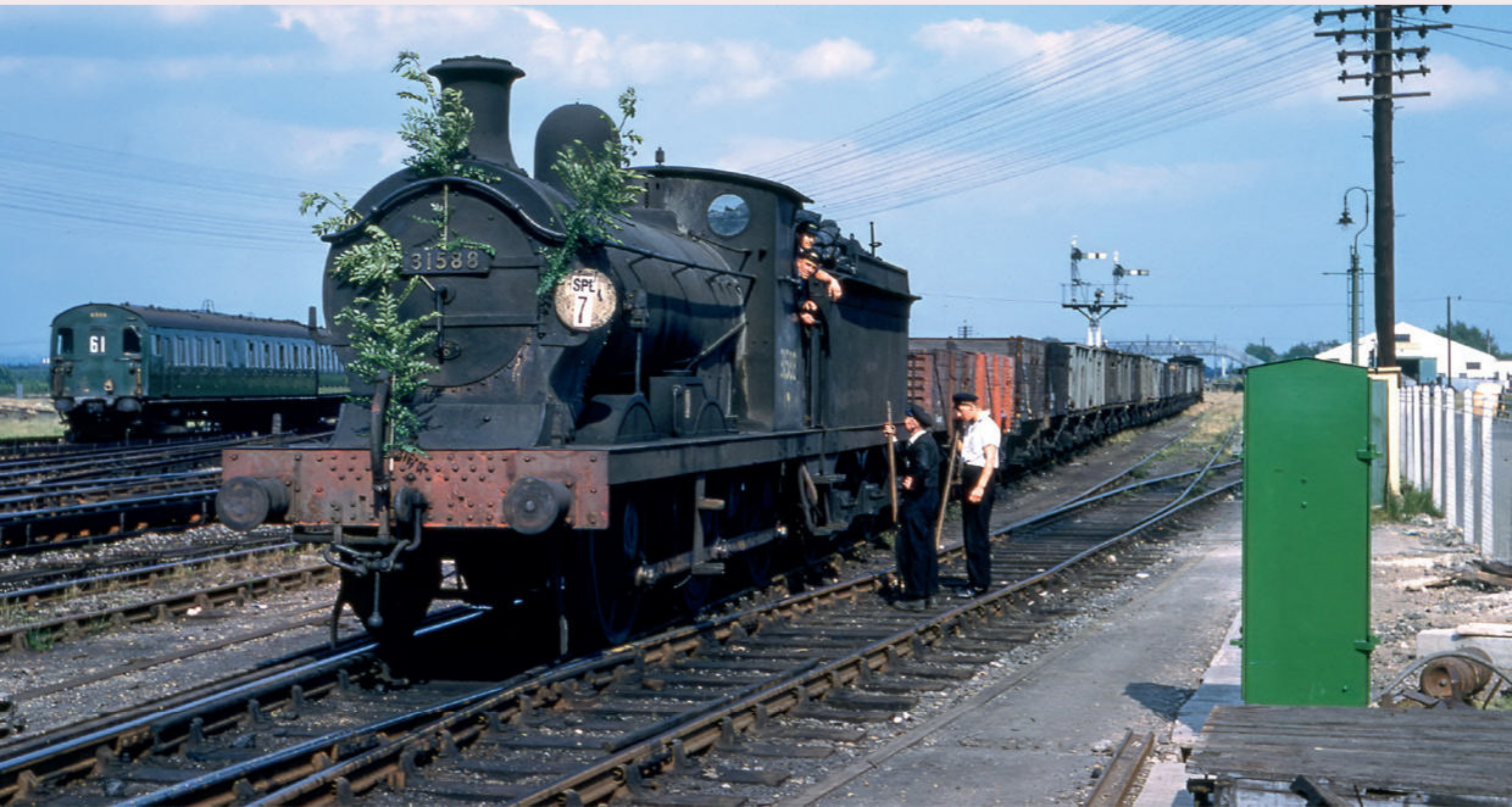
BOTTOM: **The unpretentious station building at Cranbrook consisted of a single story building, apparently constructed of corrugated iron, and a short wooden awning was provided to protect passengers from the weather. The adjacent station master's house was a much grander, tall three-storey**

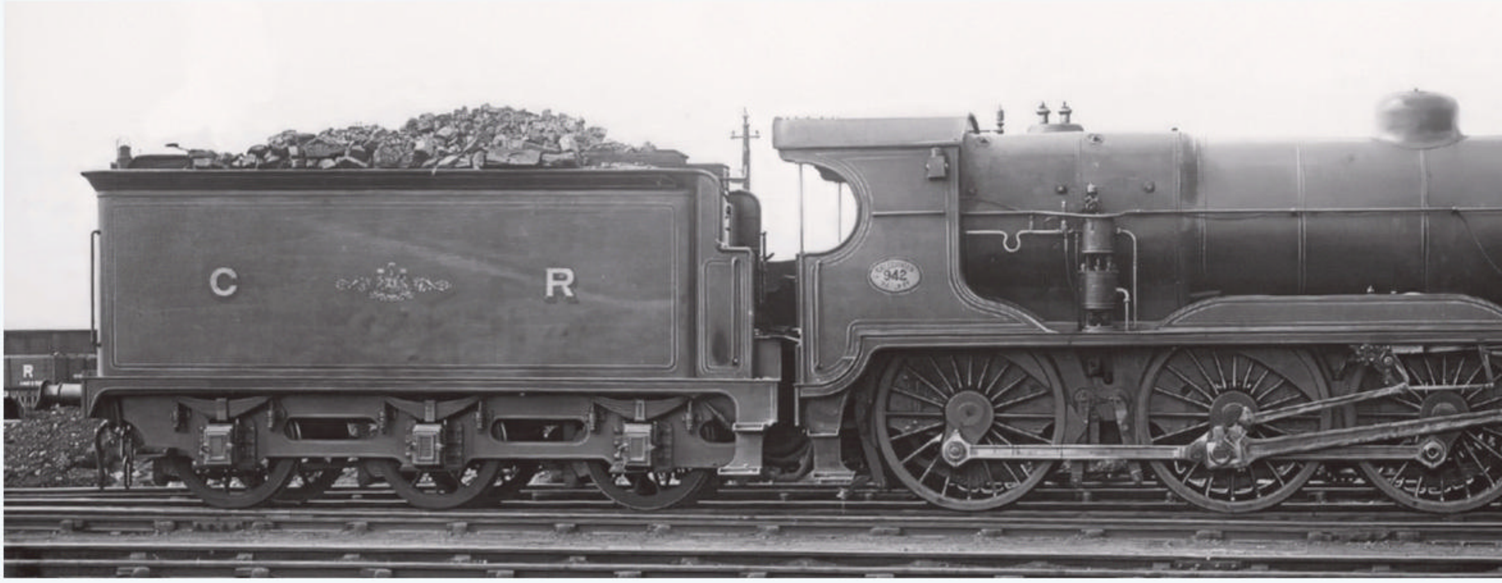


affair with three dormer windows, the first floor being rendered but mercifully the ground floor retained its more attractive brickwork. The small signal box is partially hidden and, like the fence beyond, appears to have been recently painted. Class C 0-6-0 No.31588 simmers in the platform while the expressionless guard looks on from his brake van. Half a mile beyond Cranbrook trains passed through Badger's Oak Tunnel (178 yards) which was the summit of the line where it crossed the main watershed of the Weald.

ABOVE: **Next stop Goudhurst. During the 1960s when so many rail lines were facing the axe it was sometimes alleged that BR carried out unnecessary maintenance work, the inflated cost of which strengthened the case for closure. Certainly the signal box at Goudhurst looks very smart and appears to have been recently repainted, similarly the signal posts and white gate to the left of the locomotive. A small group of gentlemen is chatting to No.31588's fireman, all no doubt very mindful of the sad fact that they would be unlikely to see a train at Goudhurst again. Note the delightful signals, one of which is a vintage lower quadrant, while the one nearest to the camera is a relatively modern upper quadrant example. There is photographic evidence that a few days prior to closure there was a green enamel sign with the station's name on the signal box but it had been removed by the time of this picture.**

BELOW: **The end of a melancholy day on the Hawkhurst branch. The enginemen and shunters have a chat after arrival back at Paddock Wood, no doubt thankful that there work is almost done for the day – they certainly seem to have accumulated a long train of wagons. They have also found time to decorate No.31588 with a little lineside foliage. On the left a shiny 2-HAP electric unit just creeps into the picture. Those units were insulated with blue asbestos which curtailed their working life, in contrast to No.31588 which was built at Ashford in 1908 and survived in traffic until June 1962.**





Highland Railway No.74 as Caledonian Railway No.942. Built December 1915, withdrawn as LMS No.14760 at the end of 1946.

FREDERICK SMITH'S HIGHL 'RIVER' CLASS 4-6-0s

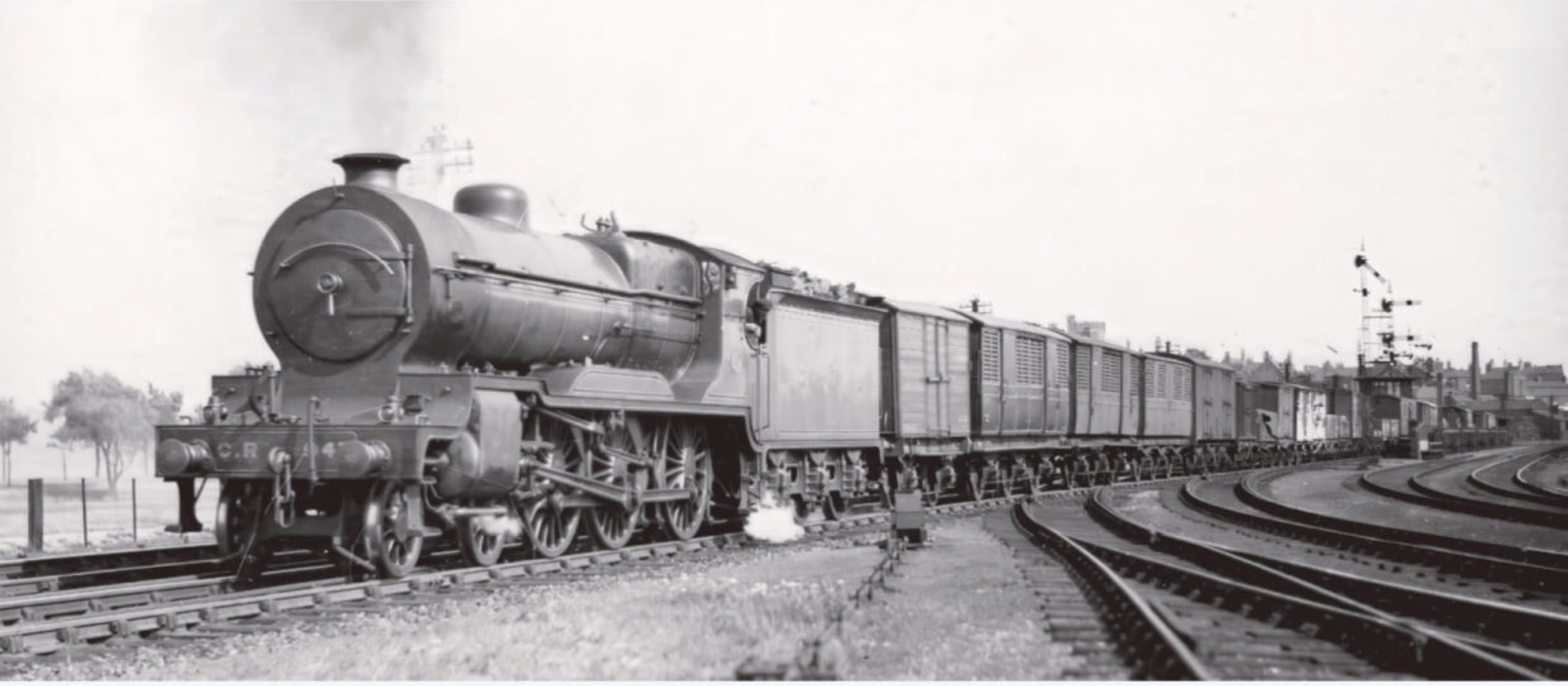
BY DAVID ANDERSON

The circumstances surrounding the design and construction of the Highland Railway's six mixed-traffic 'River' Class 4-6-0s, which were later sold to the Caledonian Railway to become the '938' Class, remains as one of the most unusual and controversial events in the annals of British locomotive history.

Appointed in 1912 as the successor to Peter Drummond, the Chief Mechanical Engineer of the Highland Railway, Frederick George Smith was responsible for drawing up the specifications for a modern superheated 4-6-0 to operate on the main route between Perth and Inverness. Smith was born on 20th April 1872 in Newcastle upon Tyne and in 1888 he commenced a five-year apprenticeship under Thomas Worsdell at the North Eastern Railway's Gateshead Works after which he spent a further seven years of his career at the company's running sheds at Middlesbrough, Shildon and Blaydon. A man with an inventive character, Smith secured the post of Works Manager of the Highland Railway in 1903, prior to which appointment he had served with the Royal Engineers' Volunteers in the 1890s.

A detailed specification of the new engines' design had been issued from Lochgorm Works in Inverness although the majority of the drawings were prepared as a wartime expedient by the North British Railway's drawing office at Cowlairs by the company's chief draughtsman Archibald Campbell. In September 1914, the Highland Railway's board of directors awarded the contract for the construction of the six new 'River' Class 4-6-0s to Hawthorn, Leslie & Company, Newcastle upon Tyne, on the understanding that the engines would be delivered in pairs in May, June and July 1915 at a cost of £4,920 each, a price sanctioned by William Whitelaw, the Deputy Chairman of the board. However, due to wartime conditions, delivery was delayed and by the time that the first engine arrived at Perth in September, the Highland Railway was in a crisis due to its inability to provide locomotives for the essential transport of personnel and materials, having to rely on the loan of suitable motive power from other companies.

The first two engines, No.70 *River Ness* and No.71 *River Spey*, were delivered from the makers in September 1915. The 4-6-0s weighed 72 tons 7cwt in working order (engine only), a figure which was six tons in excess of the 66 tons indicated on the working drawings and considerably heavier



As CR '938' Class, No.943 passes Port Carlisle Junction with a northbound freight. The engine is in CR blue livery with reduced height chimney.

LAND RAILWAY

than the directors or the Highland Railway had anticipated. The 4-6-0s were also slightly out of gauge for their intended main line operation due to the tall chimney height, dome covers, safety valves and the width of the inclined cylinders and tender steps.

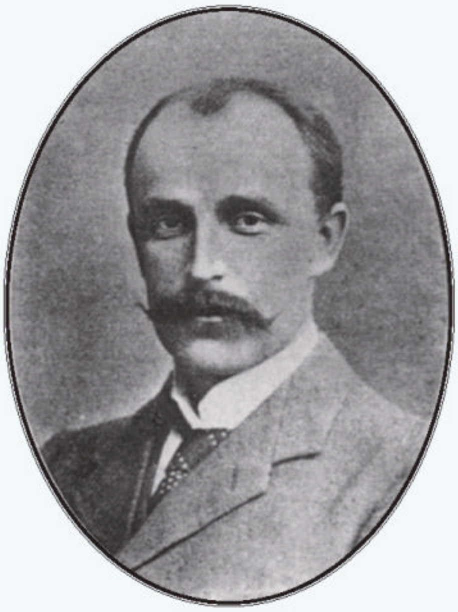
With these factors in mind, Alexander Newlands, the Highland Railway's Permanent Way Engineer from 1914-22, refused to accept the new engines for service as his department had calculated that their excess weight would impose undue stress on the company's bridges, viaducts and permanent way. The conflict which followed between Smith, the locomotive designer, who failed to convince the board of the Highland Railway as to the engine's suitability, and the strong objections from Newlands regarding the stability of the company's railway infrastructure, led to Smith's untimely resignation.

In appearance as well as their general design, the 'Rivers' were unlike anything in power previously in Scottish railway operation.

Two large inclined outside cylinders drove on to the centre coupled axle with Walschaerts valve gear and with 10in piston valves. A Robinson superheater was fitted within the extended smokebox whilst the Belpaire firebox, a feature new to Highland locomotives, carried two large Ross pop safety valves. Despite their controversial arrival on the Highland Railway, the 'Rivers' were handsome and well-proportioned engines, their design incorporating many North British Railway Cowlairs features. The tenders were massive with deep frames and high sides weighing 47 tons 10cwt with water capacity of 4,000 gallons and a coal capacity of 6½ tons.

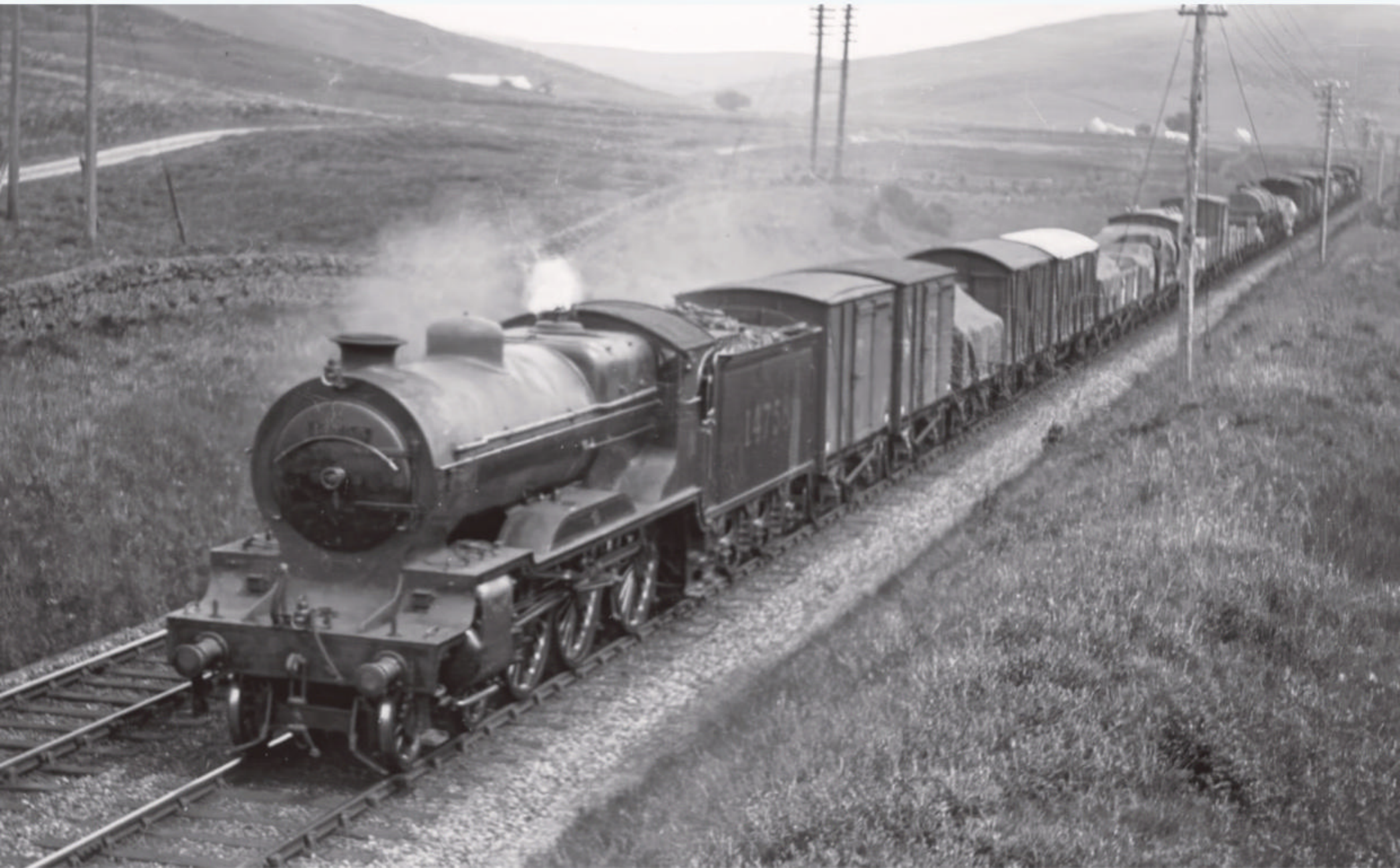
As shown on official works photographs, No.70 was painted in the Highland Railway lined-out green livery with the name *River Ness* carried on the horizontal wheel splasher, but some doubt exists if this was an authentic photograph. As far as is known, no photographs exist of the 'River' Class at work in their original livery.

The six engines were originally intended to carry numbers 70-75 on the Highland Railway. The official works photograph shows in fact that No.70 *River Ness* was the last of the class to be built and this would become No.75. The proposed names for the remaining four engines were:- *River Beauly, River Tay, River Findhorn, River Garry, with River Tummel*, according to the Highland Railway records, as a possible alternative name to *River Beauly*.

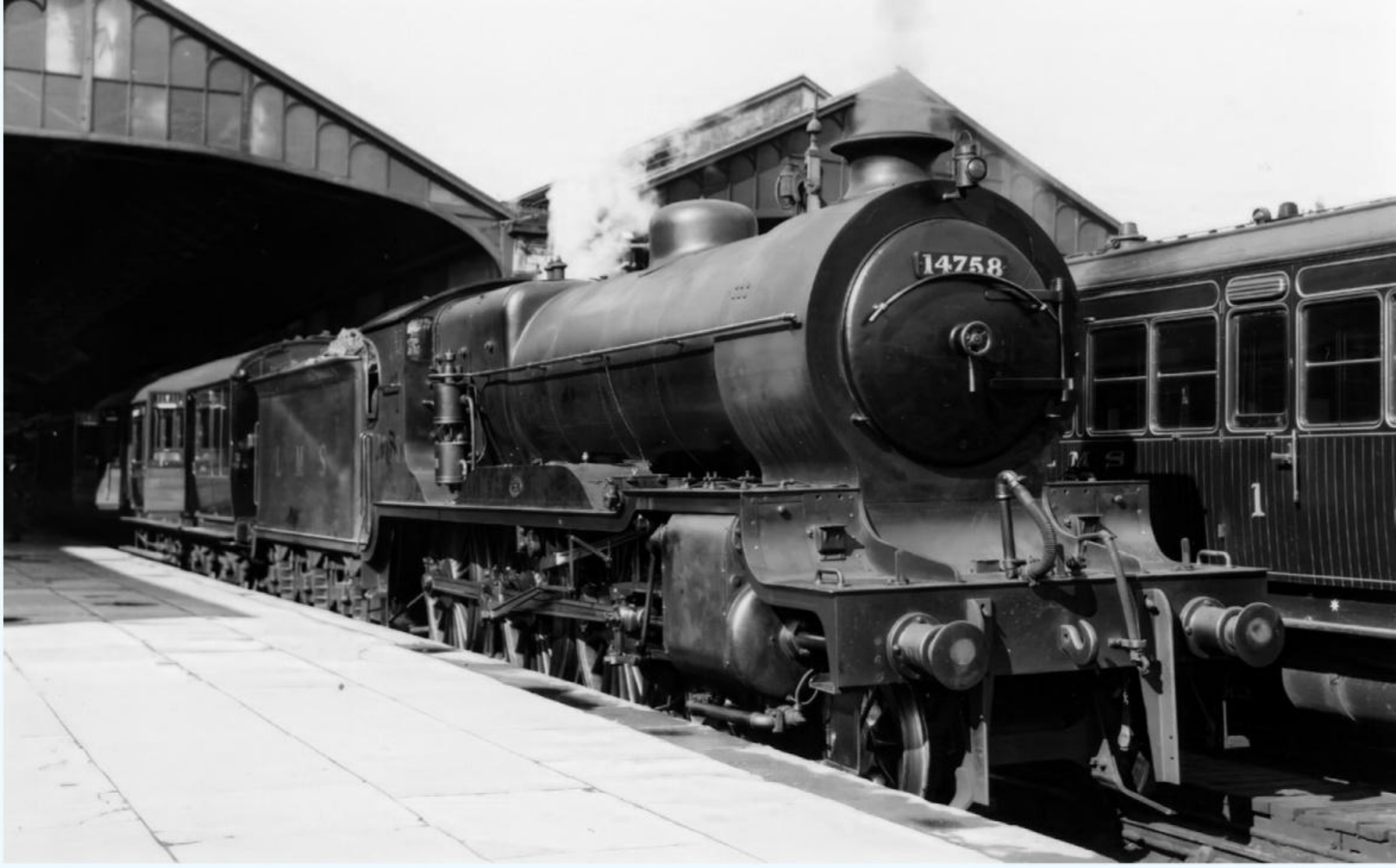


Alexander Newlands (1870-1938), Highland Railway Permanent Way Engineer from 1914 to 1922.

In October 1915, the Caledonian Railway became aware of Alexander Newland's non-acceptance of the Highland Railway's 4-6-0s on account of their excessive weight, and a purchase of the six engines was sanctioned by the company's general manager at a price of £32,400. The Highland Railway's deputy chairman, William Whitelaw, announced that the engines had



Between Elvanfoot snd Beattock Summit LMS No.14758 heads a Carlisle-bound freight on the West Coast Main Line. HR No.72 was sold to the Caledonian where it became No.940 and was withdrawn by the LMS in September 1945.



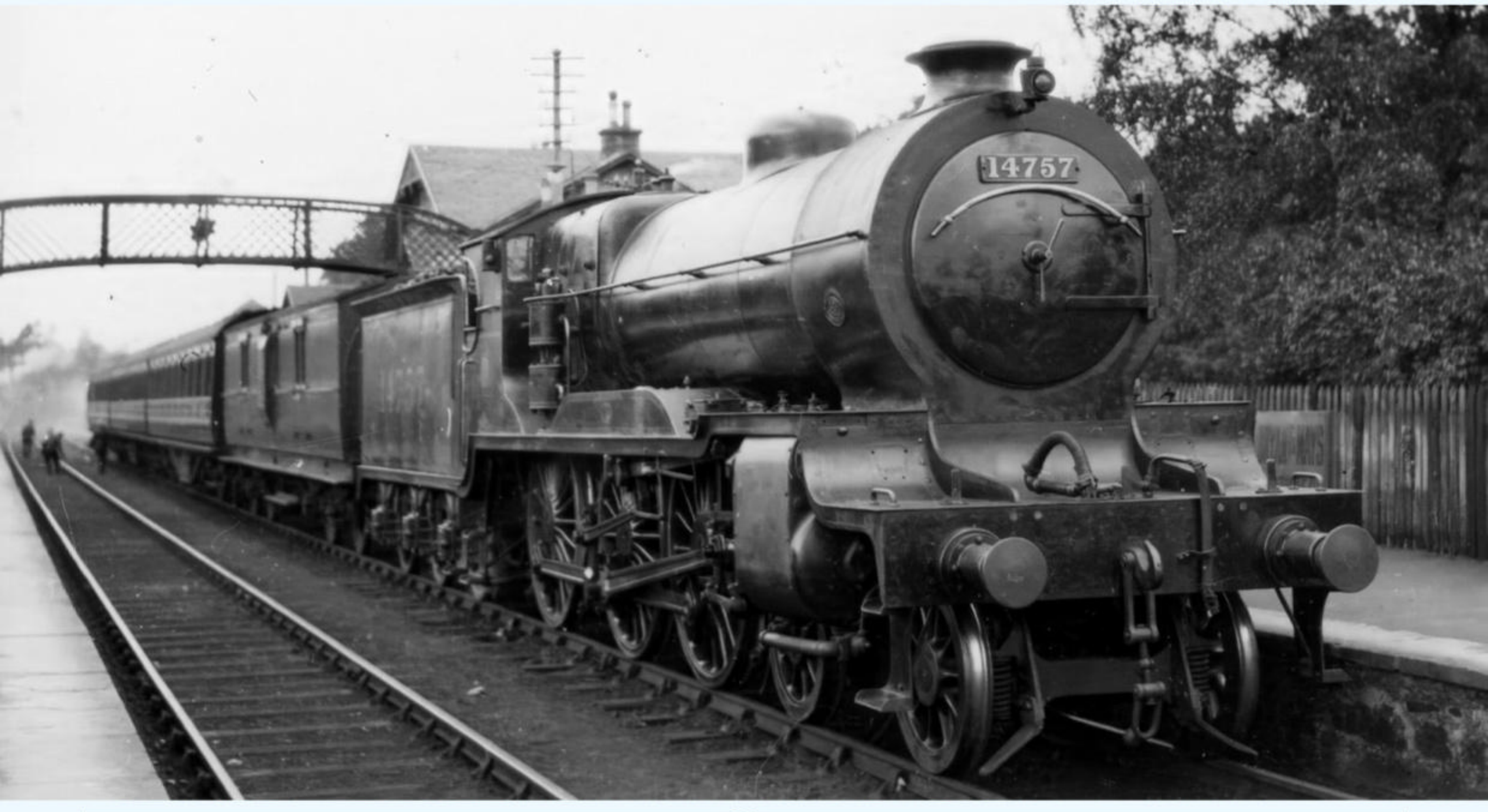
LMS No.14758 is about to leave Inverness with a southbound local passenger working. Note the large supports on the front buffer beam for the fitting of a snowplough. Former CR No.940, withdrawn September 1945.

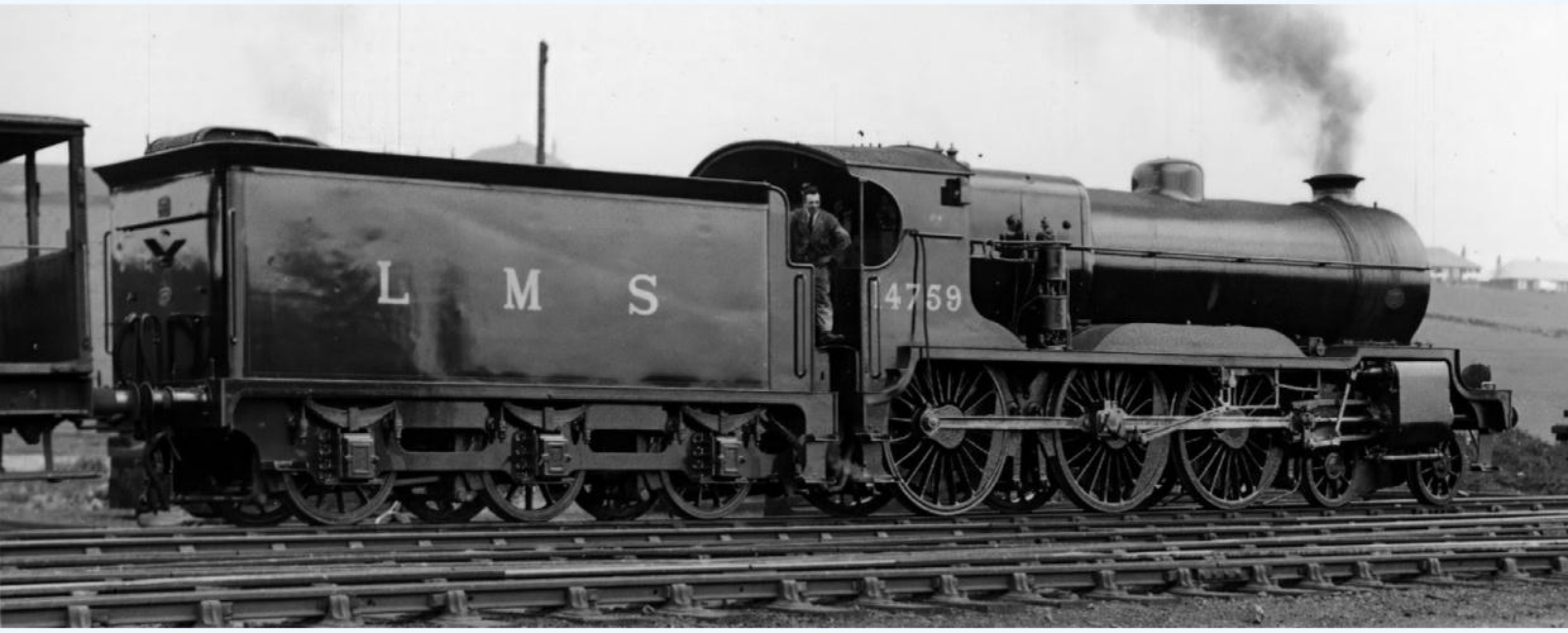
been sold to the Caledonian Railway at a profit, which was a doubtful statement as all contracts were subject to rises in costs of materials during the hostilities of the war. However, it remained a tragedy for the Highland Railway who could ill-afford to lose the services of the excellent engines at a time when every available engine was needed to handle the military traffic.

After purchase by the Caledonian Railway, the 4-6-0s were allotted the numbers 938-943 and they were painted in the company's sky-blue livery complete with scrolls flanking the initials CR on the tender sides. The engines entered service as the '938' Class after minor modifications were carried out including the replacement of lower height chimneys to conform to the new owner's loading gauge. Nos.938-41 were allocated to Balornock shed (St. Rollox), and Nos. 942-3 to Perth from where they worked passenger trains to and from Glasgow Buchanan Street. The remainder were employed on fast fitted freight turns to Carlisle and also between Glasgow and Aberdeen.

At the 1923 railway grouping all the

No.14757 on an up local passenger working at Blair Atholl. It has a curved smokebox handrail and a Westinghouse brake pump. It was the first engine to be painted LMS maroon at St. Rollox.

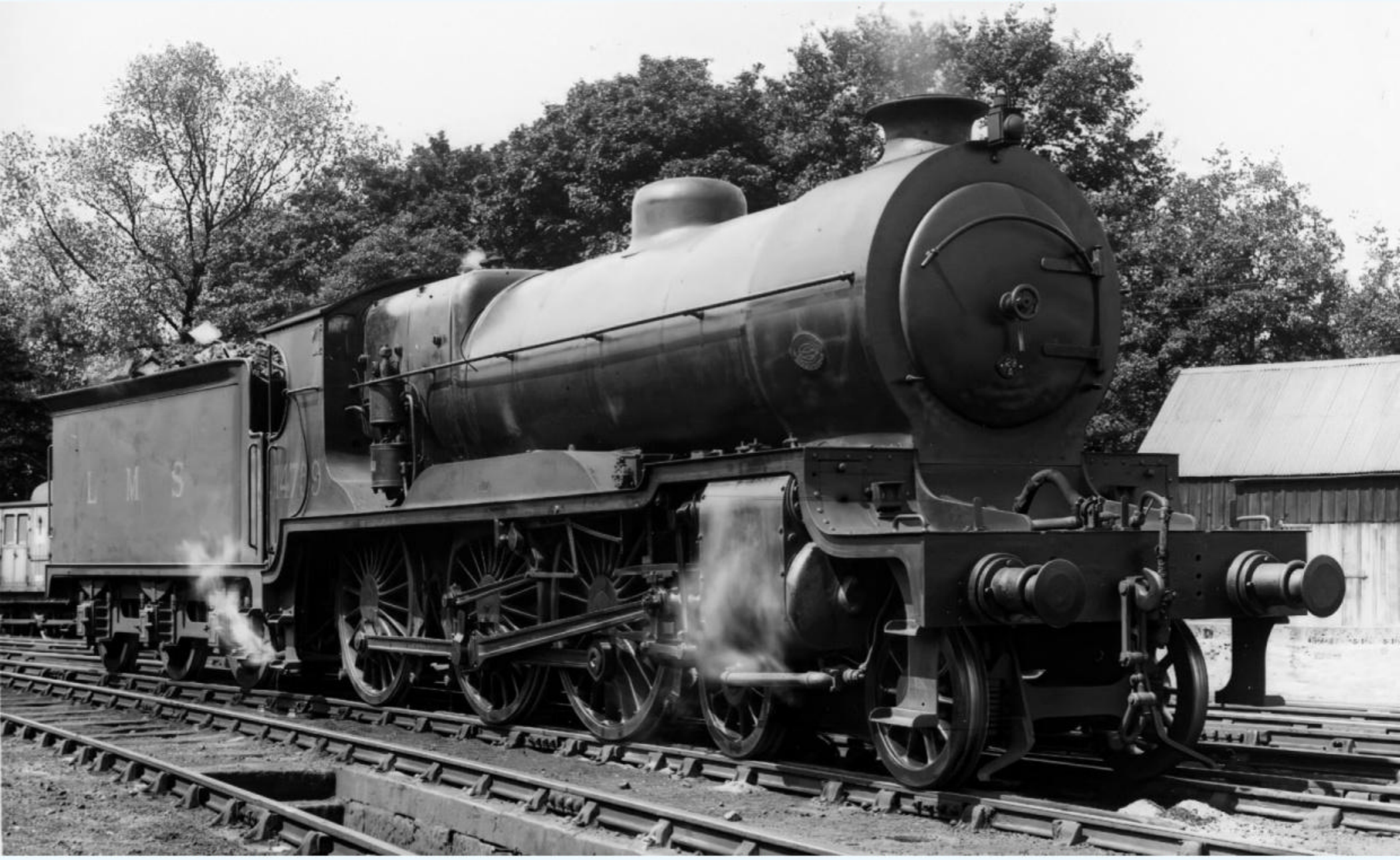


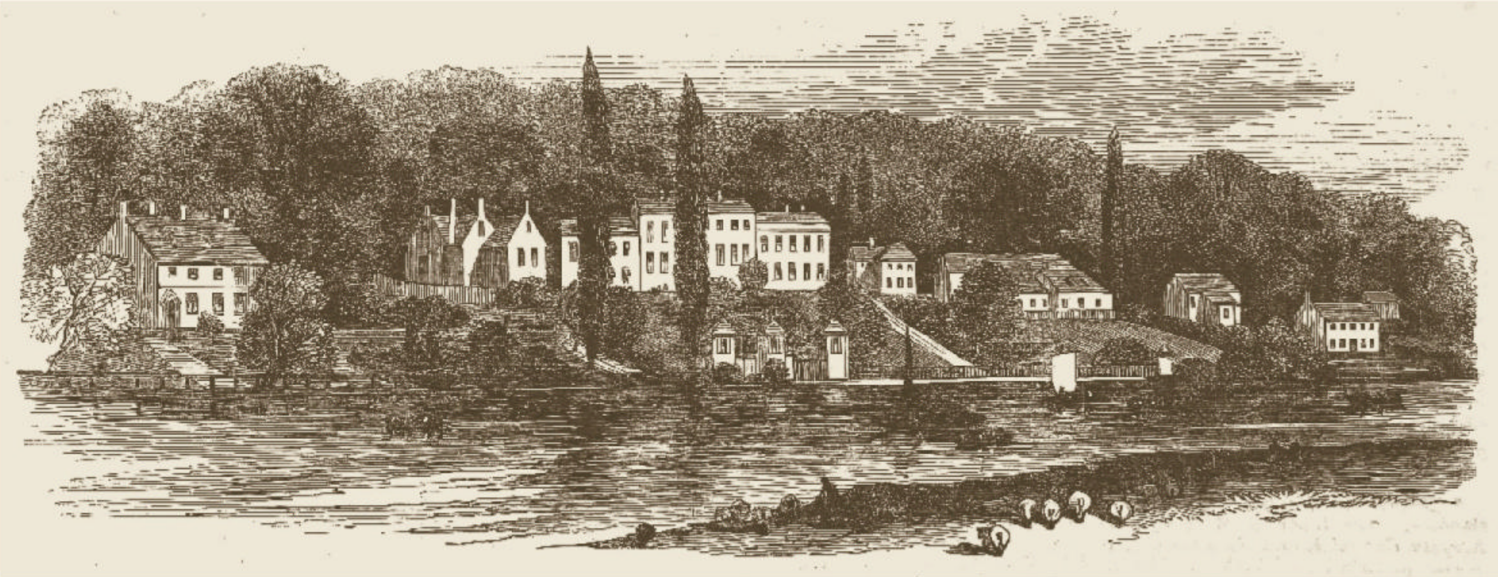

LMS No.14759 (ex-CR No.941) in clean LMS black livery heading a down goods at Balornock on 23rd May 1928. Withdrawn February 1939.

former 'River' Class 4-6-0s came into London Midland & Scottish Railway ownership and received the numbers 14756-14761 in order of construction, their liveries ranging from LMSR maroon to lined black. Tablet catchers were fitted to the cab sides of the whole class from 1928. Despite the severe restrictions imposed on the class by the Highland Railway's engineer, Alexander Newlands, the 4-6-0s proved to be highly successful on the Perth to Inverness main line, a route for which they were originally intended. As the Stanier Class 5 4-6-0s started their domination over the former Highland Railway main line, Nos.14758/60/1 were transferred to Dundee West shed for secondary duties. For the transport of troops and materials to Stranraer and the military base at Cairnryan in south west Scotland., Two engines were allocated to Ayr and received the nicknames of 'Gneisenau' (14758) and 'Scharnhorst' (14760) after two German battleships which were in action at that time.

The last of the 'River' 4-6-0s No.14760 (HR, No.74) (C.R. No.942), ran 'light engine' to St. Rollox in December 1946, the final example of a small class of six engines which had always been associated with controversy and dispute leading to the demise of their designer – the luckless Frederick George Smith who died on 25th February 1956 in his 84th year.

No.14759 (of Perth shed) at Blair Atholl in June 1937. It was a tragedy for the Highland Railway to lose these engines, not only because the HR was desperately short of motive power but also because the 'Rivers' proved to be exceptionally fine engines. (all Author's Collection)





View of Thorpe in 1851, scene of the worst rail crash in East Anglian history. The disaster occurred perilously close to the crossing of the Yare river. (Author – *The Eastern Counties Railway Illustrated Guide,* source – from the Mechanical Curator Collection, a set of over one million images scanned from out-of-copyright books and released to Flickr Commons by the British Library)

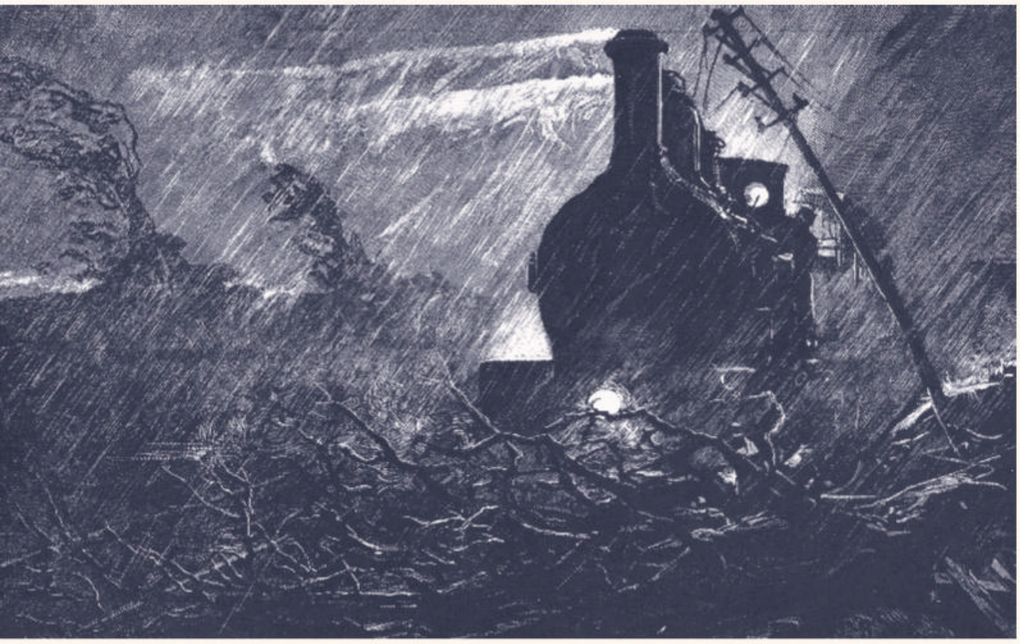
Brundall station, c1915, just over 40 years after the Thorpe rail disaster. Part of the tragedy was played out here, the fateful message 'Mail Left' being sent from Brundall to Norwich Thorpe. (© Brundall Local History Group Archive/ www.brundallvillagehistory.org.uk)

THE NORWICH THORPE RAILWAY DISASTER – 10th SEPTEMBER 1874

BY STEPHEN ROBERTS

"Head-on collision, single line" is L. T. C. Rolt's pithy summation in the index to *Red For Danger* (1955) of the Norwich Thorpe railway disaster which occurred on 10th September 1874 on the Great Eastern Railway. It wasn't an auspicious year for such calamities as there had been a similar accident at Bo'ness Junction on the North British Railway back in the January.

The devil is in the detail, however, and Rolt's longer description (pages 143-7) reveals that this was the worst head-on collision in the history of British railways and yet it is still, today, one of our lesser-known rail disasters



The accident occurred on a dark, wet night when visibiliy was reduced to some 300 yards. (© The Victorian Picture Library, reproduced with kind permission of Phyllida Scrivens)

although it has recently been the subject of a worthy book by Phyllida Scrivens (*The Great Thorpe Railway Disaster 1874*, 2021) which has given it the attention it merits as the 150th anniversary is commemorated. The basic outline of the disaster can be gleaned from the excerpts from *Mackie's Norfolk Annals* (compiled from the files of the *Norfolk Chronicle*).

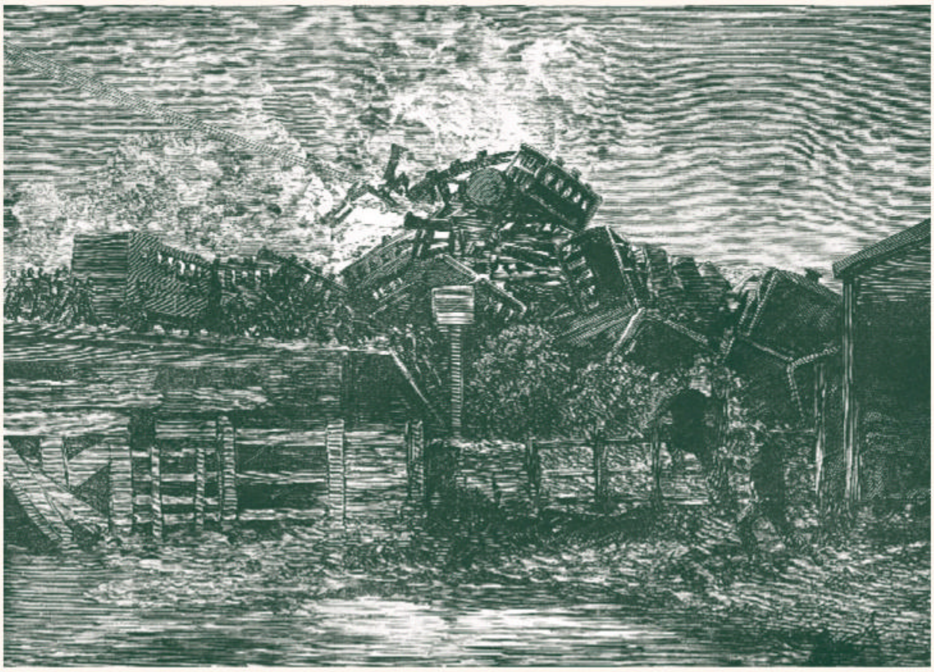
It is all rather prosaic sounding really, a sixteen-minute interlude in the life of a modest railway platform; however, on that fateful day a series of seemingly trivial errors layered on top of one another to bring tragedy to this humble spot. It would become a tale of human error and guilt affecting a single track railway between Norwich and Yarmouth, and one of the first to be controlled by electric telegraph in this country. The five-needle Cooke and Wheatstone instrumentation on the Norfolk Railway, as it then was, in 1848 would have been considered cutting edge, a model apparatus of the time. For over a quarter of a century the system had looked after the traffic on this line without mishap; however, the GER now proposed to double the line and to this end a second set of rails had already been laid between Thorpe and the East Norfolk Junction at Whitlingham, the very section on which the tragedy was to occur. The new track was pending an inspection and approval by the Board of Trade when the accident occurred.

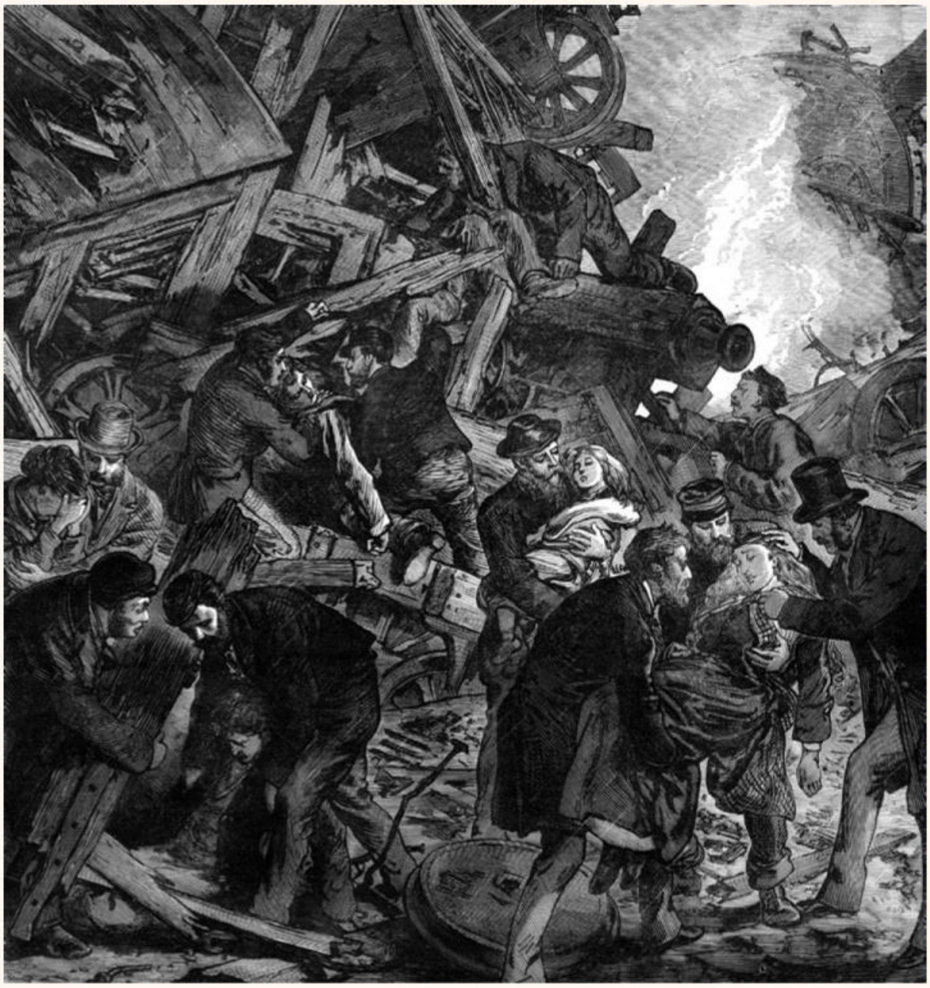
Train movements through this evolving section were controlled by the telegraph instruments at Thorpe and at Brundall, opened by the Yarmouth & Norwich Railway (Y&NR) in 1844, which was the next station along, east of Norwich, where the station master worked the telegraph himself. Thorpe, also opened by the Y&NR in 1844, a bigger concern, had a dedicated telegraph clerk who acted under the instruction of the station inspector. Late running would necessitate a change to the usual crossing arrangements and the procedure then adopted at Thorpe was for the inspector to write the new instruction on a message pad, which was always kept at the window to the telegraph office which overlooked the platform and had a window replete with sliding wicket, like a booking office. The instruction would be signed and handed to the telegraph clerk who would transmit it to Brundall without alteration and with the signature to prove its authority. Brundall would then acknowledge receipt and the pair of messages would be entered by the clerk in another book, the record book. The inspector also handed a signed instruction to the driver of the train affected by the deviation from normal practice.

A 5.00pm fourteen-coach express (Liverpool Street to Yarmouth), hauled by a Y Class R. Sinclair-designed 6ft 1in outside cylinder 2-4-0 tender engine, was usually booked to cross the 8.40pm thirteen-coach Up Mail train, conveyed by a W Class Sinclair outside cylinder 2-2-2, at Brundall, the latter being held on a loop line, giving the express a free run to Yarmouth, but on this particular occasion the express was running late. In such circumstances, when the scheduled timetable couldn't be kept, it was imperative that drivers had written authority to proceed further. Due to a series of errors, most significantly a telegraph clerk acting on an unsigned authorisation message, both drivers would receive this authority and anxious to make up time, or keep to time, hurtled off along the single track. In fact, both drivers were probably trying to get up speed, believing that the other train was waiting for them. The Mail had left Yarmouth Vauxhall at its scheduled time of 8.40pm (although *Mackie's Norfolk Annals* states it departed at 8.46), being joined at Reedham by a train from Lowestoft. The combined train reached Brundall without incident but as the line on from here was single working it had to wait so that the express heading between Norwich and Yarmouth could pass, or until permission was given to the engine driver to proceed.

The unhappy sequence of events commenced at 9.16pm when the night inspector, Alfred Cooper, who had just come on duty, went to the station master's office, as he always did, to receive his orders for the night. Cooper specifically asked the station master, Mr. Sproule, about the Up Mail; Sproule responded by asking what time it was due at Brundall, to which Cooper responded: "9.25". An ambiguous exchange then followed in which Sproule said they wouldn't have the Up Mail, with Cooper reminding him there was an order permitting them to delay the 21.10 down as late as 9.35 to allow the Up Mail through. Sproule's response, "All right, we will soon get her off", could have referred to either train, but he was actually meaning the express whereas Cooper thought it was the Up Mail that was being given the way ahead. There is an innate danger in using a pronoun such as 'her' in such a circumstance. Cooper strode immediately to the telegraph office, tapped on the wicket to attract the young clerk's attention, John Robson, and issued him with the clear instruction: "Tell Brundall to

The crash site as depicted in *The London Illustrated News,* 19th September 1874.
(© The Victorian Picture Library, reproduced with kind permission of Phyllida Scrivens)





The rescue mission as depicted in *The London Illustrated News,* 19th September 1874.
(© The Victorian Picture Library, reproduced with kind permission of Phyllida Scrivens)

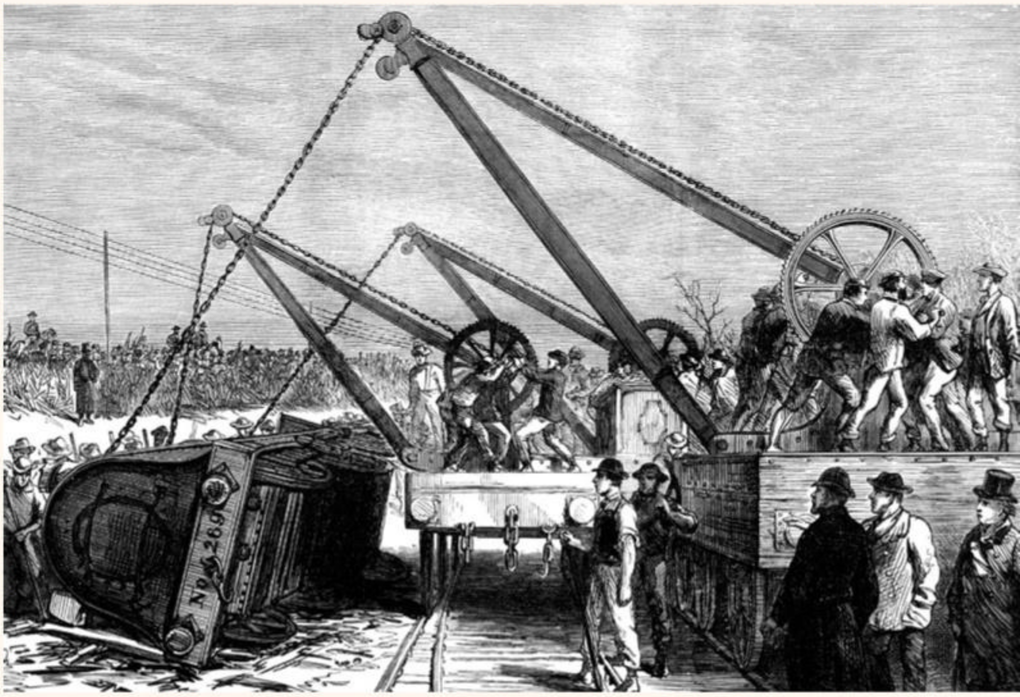
send the Mail on to Norwich". Robson wrote the message on to the pad although Cooper hurried off without ever signing it. The time was now 9.22pm.

Just one minute later the express drew into the Down platform hauled by a four-coupled mixed traffic engine, No.218. The locomotive was met by the day inspector, Mr. Parker, who had anticipated that the train could be running to time and so had already made out an order authorising her to proceed. Parker was standing by the engine when Cooper approached, Parker enquiring of him whether he'd arranged for the Up Mail to come on. For some reason known only to himself Cooper responded, "No, certainly not; let us get the train away as soon as possible", yet he had handed an order to Robson just moments before authorising exactly that. Parker, assuming the road ahead was clear, then handed his order to the driver of the express, telling him to proceed on to Brundall. Parker gave the express the 'right away' at 9.30pm, the station master watching it duly pull away from his office window. The train had barely left when an inspector of railway police, Edward Trew, happened to rap on the telegraph clerk's wicket on some other matter, prompting Robson to open up and enquire as to where the express had got to. Trew responded with the words Robson wouldn't have wanted to hear, "She has just left." "What, left the yard?" exclaimed the youngster just as Cooper came bustling up and asked, "You haven't ordered the Mail up, have you?" Robson responded with the only riposte open to him: "You told me to order her up." Thinking quickly, Robson immediately went to his instrument and hurriedly signalled to Brundall: "Stop Mail." The catastrophic reply came back immediately: "Mail left." Blame and recrimination began in the next instant, Robson returning to the wicket with his pad, asking Cooper to sign his order, which the latter was not about to do in a hurry: "No! No, I never gave you that message. I did not. I did not." Robson, for a young man, possessed clarity of thought in a moment of crisis: "Why, if you did not, have you now come back to cancel it?" There was really no answer to that. The catalogue of errors now included issuing and accepting an unsigned order on top of ambiguity.

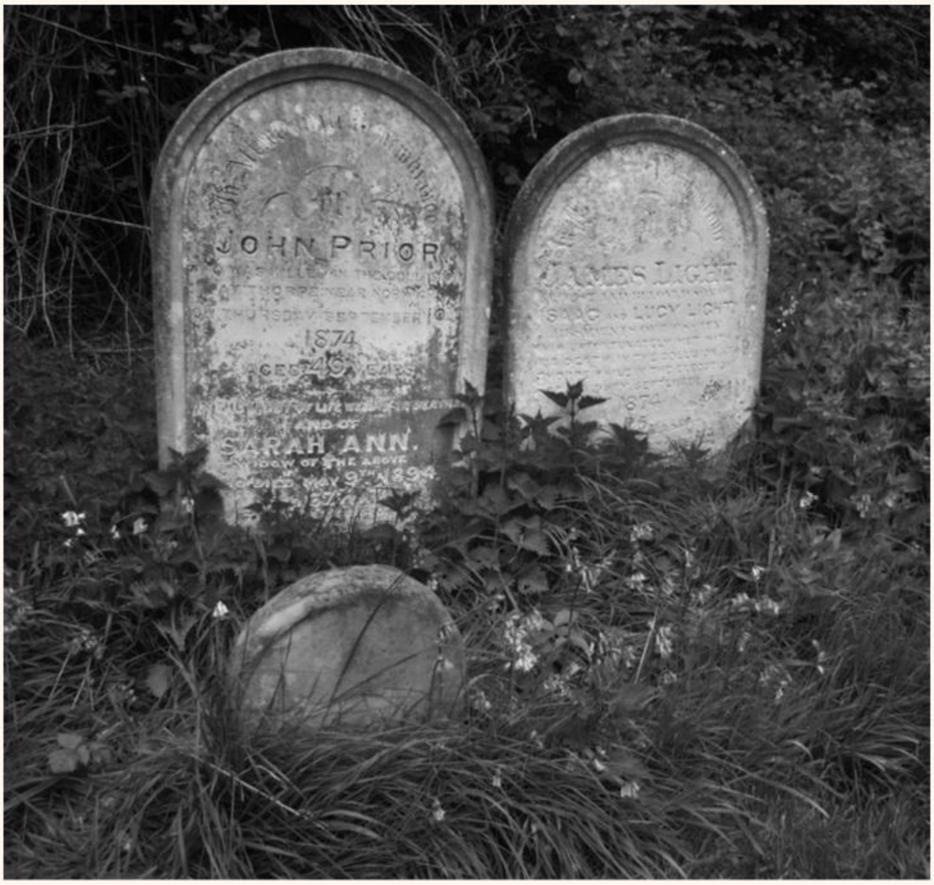
Another character now entered the drama, the ticket inspector, Mr. Hayden, who asked what was up, to which Cooper replied: "The Mail is coming up." Hayden invoked the Lord, blaspheming before declaring this "a frightful thing". The station master was immediately alerted to a crisis situation, the raised voices and the word 'Mail' were enough to tell him that. He came rushing out of the sanctuary of his office and would later describe the situation which unfolded at the inquiry. Asking about the Mail, he noticed Cooper's face as white as chalk, or as Sproule put it: "He had the appearance of a man paralysed." Cooper then admitted, "I have ordered the Mail up", and everyone knew what that meant. It was a dark, wet night, the autumn evenings drawing in and visibility would be reduced to some 300 yards; in these circumstances, Cooper's slackness had sent two trains to their inevitable destruction. Sproule acknowledged that recalling precisely what had happened thereafter, in such terrible moments, was largely beyond him; however, he did recall that he had immediately suspended the bereft figure of Cooper, replacing him with Hayden.

Thanks to Cooper and Robson, the Mail had been allowed to proceed on to the single line. The express was also permitted to leave Norwich at the same time. While the gaggle of Thorpe staff stood on their platform, the

Accident truck arrives to raise the wreckage – a generic picture rather than one specifically of the Thorpe rail disaster, which nevertheless shows the difficult working conditions that would have faced the rescue and recovery operation.
(© The Victorian Picture Library, reproduced with kind permission of Phyllida Scrivens)



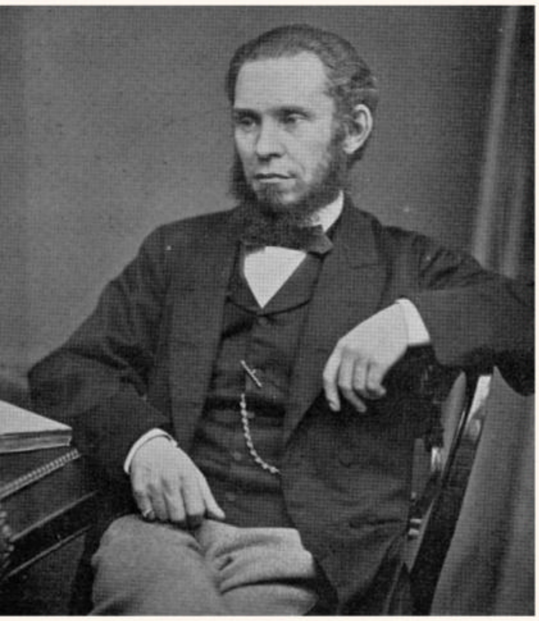
real drama was about to be enacted beyond the station lighting in the gloom up the line where two trains were now speeding towards one another with no hope of salvation. Their meeting place was the single track at Thorpe St. Andrew, about two miles from Norwich, between the Yare Bridge and the junction with the East Norfolk Railway at Whitlingham Junction, the noise of the collision at around 9.45pm akin to a massive clap of thunder according to those unfortunate enough to hear it. There was a curve in the line here so neither driver saw the other until just before they met, the trains travelling at a combined speed of around 50mph (the up mail doing 30-35 and the down express 20-25). However, there was some good fortune (although it may not have seemed like it) as the Norwich train had just crossed the bridge over the Yare; had the collision occurred right there many more would surely have died as passengers fell into the water. There were also three empty carriages immediately behind the engine of the Norwich train which helped to reduce the number of casualties. There would be no front-line witness to the last moments as both train crews, drivers and firemen, would perish in the impact, although it was discovered that the Mail's engine, the 7ft single No.54, had its regulator shut and tender brake screwed hard down; they must have known what was coming but couldn't prevent it. 25 lives would be lost with 73 more injured.



The graves of mail train driver John Prior and his fireman James Light, Rosary Cemetery, Norwich. (Author – Jack1956)

Even before the full extent of the tragedy was known, when the death toll was feared to be fifteen or sixteen, the *Essex County Standard* was declaring it to have been one of the most fearful accidents to have occurred in the district. There was a doctor and a surgeon on the Mail, but the surgeon was so badly injured he was unable to offer any assistance (although some sources claim that despite those injuries, he did help tend the wounded). The *County Standard* added that the two engines reared up so as to be in a perpendicular position with carriages reduced to wreckage. There was little dignity for the dead either, these and the dying being removed to Field's boathouse and to the Tuns Inn (today's Rushcutters Arms) where a makeshift morgue for seventeen victims was set up in what is today the skittle alley, with the injured taken to the Norfolk and Norwich Hospital. The *Birmingham Daily Post* reported that bodies were placed on makeshift beds in a village pub (the Tuns) with one man lying next to a five-year-old. One woman was so badly crushed that she resembled a jumble of clothing. The following morning the scene of the catastrophe was visited by many hundreds of persons, among them the Duke of Connaught, then stationed in Norwich with his regiment, the 7th Hussars. Reporters were apparently permitted to view the bodies which feels like a final indignity.

Sir Peter Eade (1825-1915) as a young man. He was appointed physician at the Norfolk and Norwich Hospital in c1858 and as a passenger on the Yarmouth–Norwich train was on hand to assist the injured. (Source – Wellcome Collection)



Death tolls are often disputed with different sources quoting alternative figures: Having recorded that the double track between Brundall and Reedham had been extended from Norwich to Reedham in 1874, *Norfolk Railways* (W. H. Smith, 2000) then briefly mentions the head-on collision of that year "between the Up mail train from Yarmouth and Lowestoft and the 5 pm London to Yarmouth express" and offers 21 as the number of fatalities. The reason for the discrepancy is that 21 died at the scene, seventeen passengers and both train crews; four more later died from their injuries. In addition to the 73 passengers injured, two railway guards also suffered injuries. *Mackie's Norfolk Annals* plumped for "18 killed on the spot" with five dying "in the course of a few days", with about 50 "severely wounded", suggesting that a couple of dozen suffered minor injuries. As for the injured, there is a brief mention in a Londoner's letter to his Norwich relatives, enquiring after the health of one of the injured persons, a Mr. White of St. Giles' Street, and there is one reference in the local hospital's board of management minutes for 3rd October 1874, thanking the directors of the GER for a donation of £200 in recompense for the hospital's care of the casualties but, unfortunately, no actual records of that care seem to exist. The admission records covering 1874 are missing and there appears to be no other reference to the casualties in either the post-mortem or surgical registers.

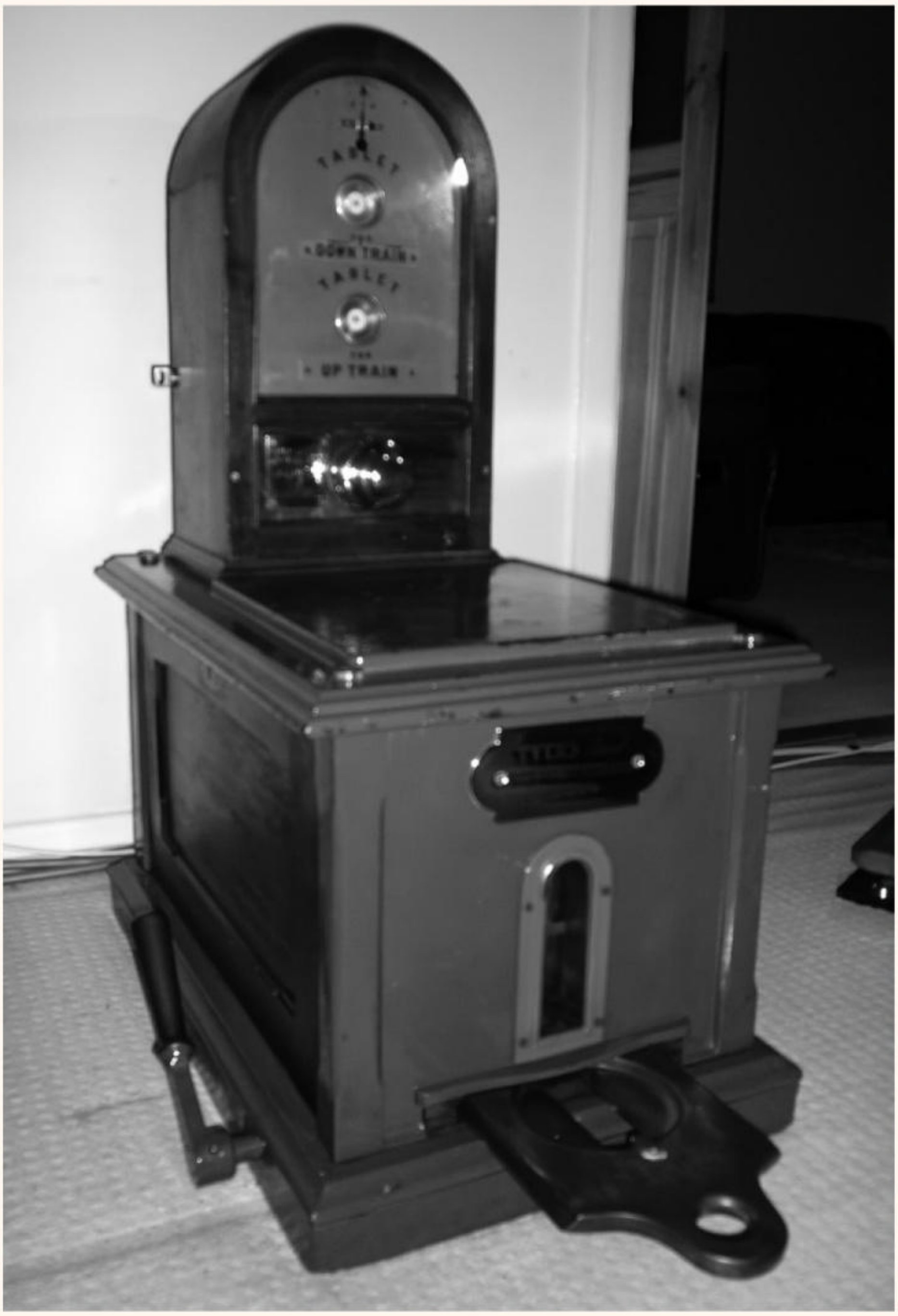
The City Coroner (Mr. E. S. Bignold) opened an inquest on the bodies of two people who had died at Thorpe and after formal evidence adjourned the inquiry to the 25th, when the jury found the accident due to the negligence of both Robson and Cooper, against whom they returned verdicts of manslaughter. The County Coroner (Mr. E. Press), on the 12th, held an inquest on the bodies lying at Thorpe, adjourning the inquiry to the Shirehall. On 5th October the jury returned a verdict of manslaughter against just Robson. The Board of Trade inquiry commenced at the Guildhall before Capain Tyler, R.E., and Mr. Ravenhill, on 21st September and on 22nd was adjourned *sine die.* It was resumed on 5th October and again adjourned.

On 23rd February 1875 the Sheriff of Norwich (Mr. J. Youngs) and the Under-Sheriff (Mr. F. Foster) opened a court at the Shirehall for the assessment of damages in the claims brought against the Great Eastern Railway Company by the relatives of those who had been killed or injured in the Thorpe collision. On 6th April, at Norwich Assizes before Mr. Justice Blackburn, Alfred Cooper and John Robson were indicted for feloniously killing and slaying George Robert Womack, one of the victims of the collision, on 10th September 1874. The jury acquitted Robson, but returned a verdict of guilty against Cooper, who was sentenced to eight calendar months' imprisonment. At the same Assizes, a special jury tried the civil action, Morse v the Great Eastern Railway Company, in which the Rev. Charles Morse sued the company for compensation for injuries sustained in the collision. The jury awarded him £2,050 damages. On 17th April it was announced: "It is now expected that the amount of compensation claims will not exceed £40,000. About £10,000 has been paid in the amicable adjustment of minor claims, and juries have awarded some £15,000 more." At the Summer Assizes, on 6th August before Mr. Baron Bramwell, a special jury awarded Mr. C. R. Gilman £6,497 3s 8d for damages, medical attendance and extra expenses due to his injuries.

That the night inspector, Cooper, took some of the blame, there could be no argument, but then there was also Robson, just eighteen years of age, who apparently had four other young men in his telegraph office at the time the tragedy played out, these presumably distracting him from his work. It was a point hammered home by the Board of Trade inspector, Captain Tyler, who also emphasised that Robson knew very well that no order should be transmitted unless it had been signed for, yet he almost immediately sent Cooper's verbal order to Brundall, marking it: 'Signed A. Cooper'. Cooper, of course, had not signed it. When asked why he'd done this, all Robson could say was that he'd been too obliging and that it was not something he'd ever done before. Tragedies happen in the moment. He added that Cooper had said he'd return post-haste but never did. Captain Tyler reminded Robson that he had a bell for this very eventuality, to recall the inspector to his office if needs be, but Robson was actually loath to do this because summoning the inspectors by ringing a bell made them angry. Cooper said that no sooner had he given Robson the fateful order than he heard the express approaching at which point he cancelled the order. Robson denied that this happened. Who truly bore the lion's share of the blame is hard to discern 150 years on but Captain Tyler chose to focus attention somewhere else, declaring that a system that permitted such mistakes to occur was a flawed system. The railway companies might argue that other methods of working caused more delays, and this might be true, but this consideration should never trump that of public safety on the railways. The sad fact was that the telegraph system with its staff working was the safest combination for single line working at the time. As the Thorpe disaster showed, though, it was not foolproof.

The history of UK railway accidents tells us that we have a pretty good record of ensuring that similar disasters do not re-occur, hence the quotation from Shakespeare in the preface to Rolt's *Red For Danger* (1955): "Out of this nettle, danger, we pluck this flower, safety." (*Henry IV, Part 1*). An inquiry will often result in an improvement. In the case of the Thorpe disaster, the terrible head-on collision on a single line prompted the engineer Edward Tyer (1830-1912) to develop the tablet system where a single-line token is given to a driver to be slotted into an electric interlocking device at the other end of that single track section before another train can enter said section.

Tyer's Electric Train Tablet system, view of No.6 instrument showing the restoring lever and the tablet tray in the 'out' position. Tyer's system was developed in response to the Thorpe rail disaster which had occurred on a single line track.
(Author – Sir Ross BA)



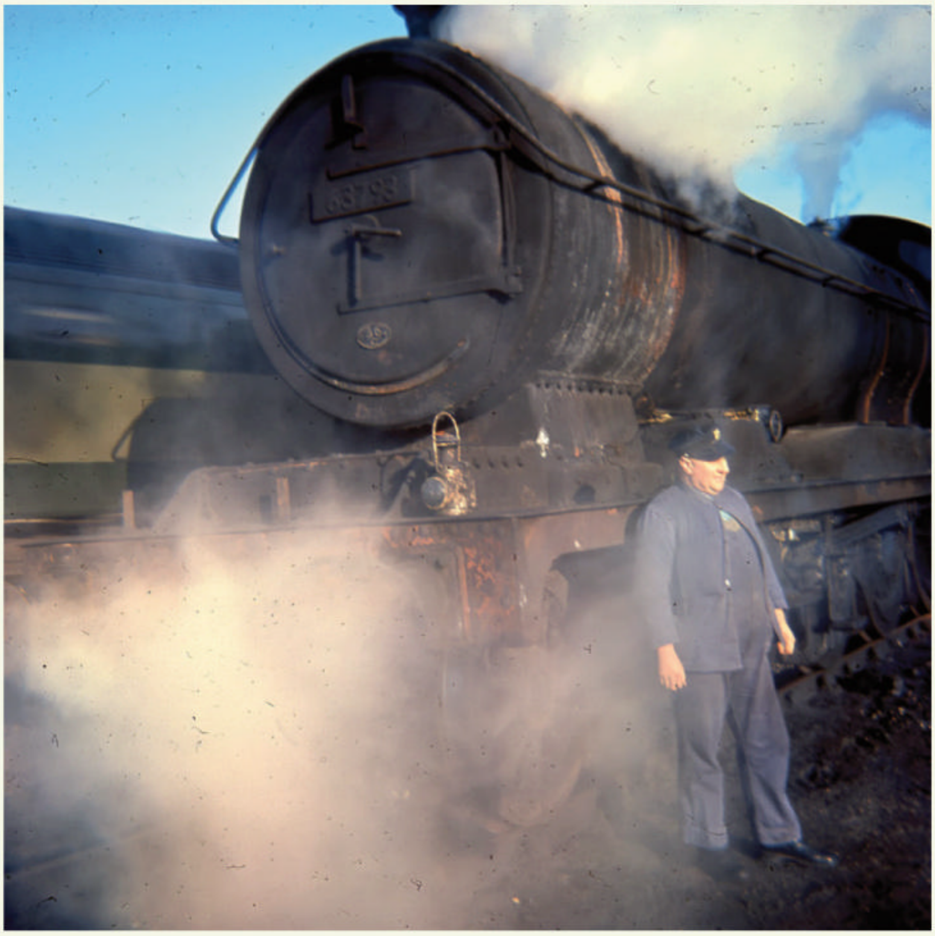
The Telegraph Messages (as recorded at Norwich (Thorpe), 10th September 1874)
9.24pm – 'Send up Mail train on to Norwich before the 9.10 pm passenger train leaves Norwich' (Norwich to Brundall).
9..24pm – 'When the up Mail train has arrived at Norwich will line be clear for 9.10 pm down passenger train to Brundall' (Norwich to Brundall).
9.25pm – 'I will send the up Mail train on to Norwich before the 9.10 pm down passenger train leaves Norwich' (W. Platford, Norwich to Thorpe).
9.32pm – 'Stop Mail' (Norwich to Brundall).
9.32pm – 'Mail Left' (Brundall to Norwich)

Acknowledgements

Phyllida Scrivens, author of *The Great Thorpe Railway Disaster 1874* (Pen and Sword, 2021).
Tom Townsend, archivist, Norfolk Record Office

References

Chambers Biographical Dictionary (1974)
Red For Danger (L. T. C. Rolt, 1955)
Britain's Railway Disasters: Fatal accidents from the 1830s to the present day (M. Foley, 2013)
Norfolk Railways (W. H. Smith, 2000)
Norfolk Record Office (www.archives.norfolk.gov.uk)
Eastern Daily Press website (www.edp24.co.uk)



Fred Hallam alongside the Gunhouse banker, O4/8 2-8-0 No.637893, with a Brush 4 passing on the down main.

THE OLD AND THE NEW FRODINGHAM

BY BRYAN LONGBONE

Frodingham steam shed, along with the whole railway at Scunthorpe, was in competition for labour with the local iron and steel works and their associated ironstone quarries. All of the latter were accompanied by substantial railway infrastructure and steam locomotive operation, diesels entering this scene from the mid-1950s. Well over 100 locomotives could have been in operation at any one time in the area based on this industry.

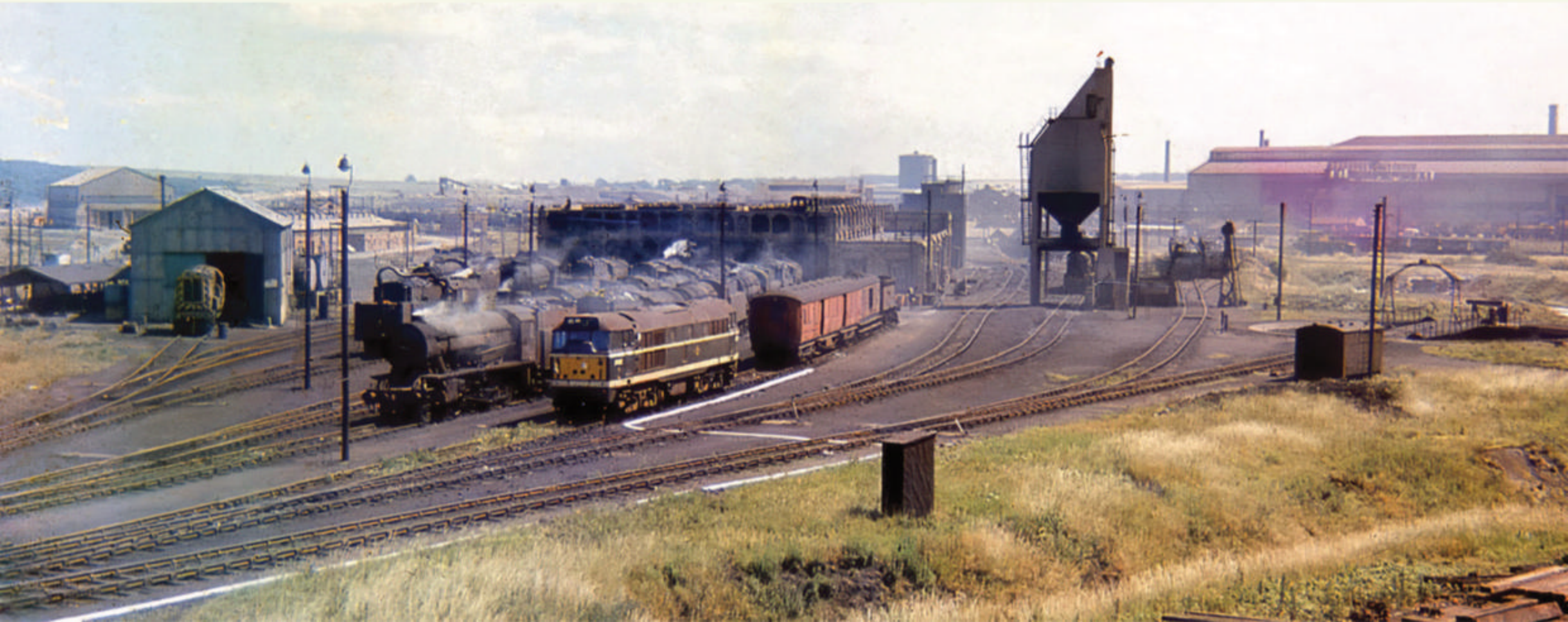
Consequently with 'The Works' regular working pattern of 3 x 8 hour shifts each day, they offered more pay as compared with British Railways. In this article and by using Frodingham as an example, an attempt is made to compare the physical environments of a former steam locomotive depot erected and opened in 1932 with the replacement diesel servicing depot of 1965. Using contemporary photographs a glimpse at the differing facilities will depict the contrast of the diesel era and the earlier years steam 'look'.

The accompanying images were sourced from a Frodingham driver, the late Fred Hallam. Whilst the author was tutoring Workers' Educational Association courses on local railway and industrial history from the mid-1980s until about 2010, he began conversations with retired and contemporary railwaymen in the North Lincolnshire area relating to their working lives. Fred was one such and many became friends. George Pettitt, the author's grandfather, was a career railwayman, initially at the Great Central Railway's New Holland shed (1919), then via Keadby (1921) up to Frodingham, and using his name as an introduction the momentum gathered. Fred told me I could have his railway photograph collection upon his decease, which in a roundabout way was come to. The steam shed interior images are from 1963 and were on Gratispool Superslide format, being of good long-lasting quality still. The diesel shed images were on 35mm slide with negatives also being worked upon. These two latter were dated c1990.

The London & North Eastern Railway and BR steam shed (opened 1932), where signing on at all hours of the day and night with lower wages generally but with pronounced overtime, was a permanent challenge as to staff retention. Advertisements in the local press and elsewhere for such local jobs were a constant feature, with men leaving the main line for the works (see comments above).

However, with both industries, and from the author's experience, the general facilities of steam operation were meagre by later standards. On the iron and steel side the non-staff amenities were 'basic' and were 'unloved', attendants trying to maintain a degree of cleanliness.The works environment though, as one can guess, was not conducive – dusts, fumes, heat/cold and dirt all endemic. Paralleling this on the main line steam shed, the 1932-derived conditions were similar. One

A view of the east end of the Frodingham 1932 steam shed, with early diesels on site, 1966.



Signing-on for duty in the gloom of the steam shed.

can assume (?) because it was a near-all male workforce (except during World War II and after for a while), then it didn't matter to the managements ('It's a man's world !'). Minimum standards applied – the author can recall a 'continental-style' squat toilet on The Works and the former steam shed at Mexborough (GCR) had a trough of flowing water into which one evacuated, though it was known that burning bits of paper were wont to flow under one whilst in the process! Fred, though, did not take a photograph of Frodingham's toilets, old or new. When looking through the Sectional Council Minutes No.2 for the 1922 until the end, LNER and BR, no mention of such associated issues can be recalled. The attitude of railway management to footplate crew training was 'on the job' with juniors learning from their elders – all a bit random with results on the footplate fairly mixed. The writer has learnt that on the French and German steam railways the drivers came up early through the fitting and engineering side, with a full understanding of the locomotive operation, firemen being a completely separate category. From about the 1880s (as far as can be gathered) in the UK, the Mutual Improvement Class movement became established at many sheds. However, it was instigated by the men's side with assistance from the management in the form of lectures and models, but it was voluntary.

Into the 1950s, the working environment of locomotive depots and engine driving was becoming anachronistic in the 'new atomic age'. Clean air was legislated for from the mid-'50s allied to the annual national smog alerts. The increase in vehicle traffic added to the problem but little was considered here. This meant that the railway moved with the new thinking of electric power preceded by diesels on certain lines. This soon morphed into the reverse. The 'old' railway was considered a mucky job with staff retention poor. With dieselisation (c/o the private UK locomotive builders) the need arose for purpose-built facilities for this new mode albeit diesel in the main. Within these, the working environments changed to a liquid hydrocarbon base (oils, diesel fuel, greases), smells and oily puddles. For the footplate staff, though, messrooms, offices, along with the general ambience, rose in quality terms – cleaner and brighter.

The accompanying images sourced from Fred Hallam relating these changes within Frodingham shed will bear the above comments out. The steam shed interiors are of 1963 date and the intermediate images referred to are in the transition with the steam shed *in situ* but the diesel version in operation, ie 1966. The new Frodingham servicing depot images are of 1990 or thereabouts, three years prior to closure.

The Eastern Region of BR adopted a 'standard' for such depots; the following extract from Terry Miller describes the thinking comprehensively. *The Institition of Locomotive Engineers Journal* Vol.53 (Part 5) 1963-4. Paper No.650 'Maintenance of Diesel Electric Locomotives in Service' T. C. B. Miller, MBE p579 and on.

"... servicing depots are situated at marshalling yards or principal stations, and they must be sited so as to be reached with the minimum of difficulty by a locomotive which terminates its working and also at a location from which a locomotive may proceed to its next working with the minimum of delay. In all probability footplate crews, or sometimes complete train crews, will sign on and off duty at this place and all the usual facilities for this purpose will then be incorporated in the servicing depot.

"Locomotives normally visit a servicing depot at least once every two days. In the early days of diesel locomotive operation servicing was insisted upon at daily intervals, but this was found to be unnecessarily frequent and better utilisation can be obtained without detriment to the locomotive by arranging servicing to take place once in every 48 hours, though this will not necessarily be at 48-hourly intervals...

"The facilities provided consist merely of fuelling and lubricating oil dispensers and water hydrants inside the shed; an installation for supplying dry sand or fines of crushed slag is provided outside…

"Most depots of this type are continuously manned day and night and seven days a week. For a depot whose task

The foreman's office at Frodingham steam shed.

Frodingham diesel shed c1990.

is the servicing of 50 locomotives per day and the base for 250 train-men, the staff will consist of

Depot master	1
Clerks	5
Foremen	6
Fitters	11
Electricians	2
Fitters' Mates	16
Labourers/Cleaners	3
Timekeepers	3
Fuel Oil Attendant (including oil testing)	1
Messroom Attendant	1
	—
	49

"The work in a servicing depot consists of general visual examination of each locomotive coming in for attention, in order to detect loose, leaking or defective parts. Checks are made, with the engine running, of the operation of the brake and the deadman's device, of the windscreen wipers, sanding gear, the auxiliary generator voltage and battery charging. Observation is also made that all fuses are in position, of the level of the oil in the engine sump, in the turbocharger, the radiator fan gearbox, the engine governor, exhausters and compressors.

In addition to topping up the fuel tank and the engine cooling water, a sample of engine sump oil is taken with the engine running. This is preferably done on the arrival of the locomotive at the depot before the engine is shut down for any purpose..."

Apart from Fred Hallam, people shown in the accompanying images are not named. Comparing the early with the later images taken by Fred at Frodingham, the recorded dark and gloom of the moderately recent steam depot as compared with that of the latter diesel version stands out. A qualitative leap for staff, of all shades, workplaces and messrooms shines out over the 30+ year difference. And so it should, the pre-grouping ethos following through into the grouping era landed the working railway people with poor conditions, close akin to the coal industry for example. Nationalisation coupled with modernisation eventually enhanced such conditions immeasurably.

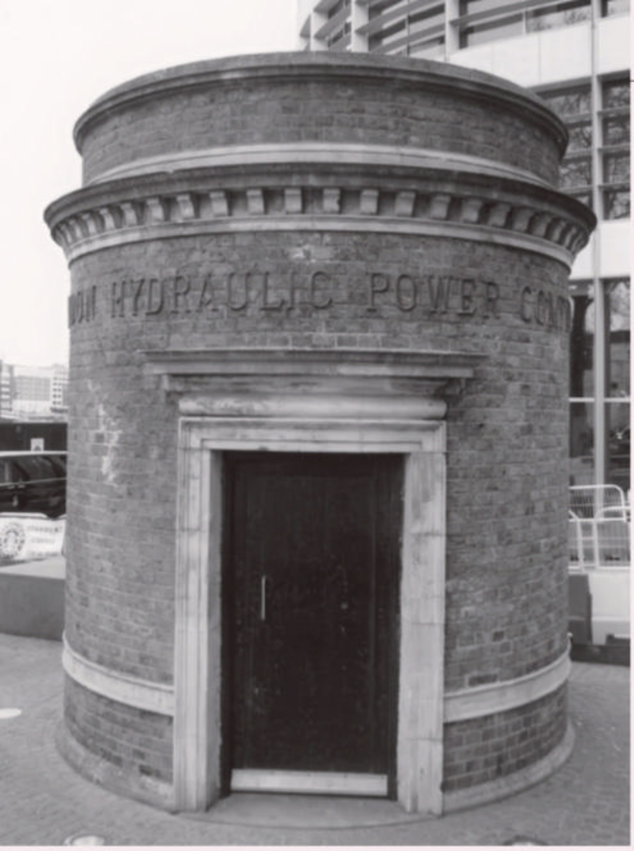
The fall-off of freight traffic by rail accompanying the de-industrialisation of the economy, plus the later privatisation of the rail system, along with the rise and rise of digital communications, has generated a 'traction operator' of no fixed abode. Invariably the freight driver is able to communicate with someone to inform him to change over at 'somewhere' accessible to the driver – even jumping off Platform 2 at Hatfield & Stainforth station – as observed by the author – to the goods loop trackside and swapping over as soon as the train pulled up. No relief crews, cabins, messrooms or other facilities on hand for the driver to access. The locomotive kit itself has a refuelling base somewhere along with mini-shed facilties for a particular company's locomotives, even if only of temporary nature, all a bit lean and mean and accountancy-based. The ownership of such locomotives and stock is … here I pause, as this aspect has been well covered elsewhere and also more informed than the author.

Comparing the steam shed office interiors with their latter diesel equivalent, certain themes stand out. Much cleaner, lighter and airier, an improved physical ambience (cookers, kettles and more). The division between non-driving staffs is very clear, the local managers (of recent date) with ties, white shirts, a 'clean' office (?). Also in this later portrayal it is very evident that the use of 'processing machines' is near-total along with banks of telephones. The more modern present would no doubt be very different again from this, but with fewer staff and less requirement for fixed facilities. Comparing again the shed office interiors of 1963, the paperwork associated with rosters, staff and much more is very evident. And the human contact, bonhomie (or otherwise !) and much else associated with the earlier shed practices, for example, the local British Railway Staff Associations with their galas, union branches and others. All this is paralleled in other trades and industries; 'it's only a job' is muttered often but it was a 'life' to many also.

Acknowledgements

The author would like to thank Fred Hallam in particular but also a whole host of Frodingham rail staff at all levels over a period of many years for informing, chatting, listening to and learning along with many others in the Workers' Association classes I ran throughout this period. Thanks to all.

The mess room of the diesel shed and no comparison with 1932: far more open, light, facilities for food and drink and no doubt warm.


HYDRAULIC POWER CO

About the only visible evidence that there ever was a Tower Subway is this portal on the north side of the river near the Tower of London, seen on 6th April 2012. It now commemorates the later owners of the subway, The London Hydraulic Power Company.
(Richard Croft via Geograph/CC BY-SA 2.0)

THE TOWER S

BY ALISTAIR F. NISBET

The Waterloo & Whitehall (W&W) had been the first railway scheme to be projected beneath the Thames but had never actually started serious tunnelling work before it was abandoned and the company wound up. Nevertheless the idea of emulating the Metropolitan Railway with its underground route across London, but in this case driving a railway beneath the river bed as opposed to the submerged tube planned for the W&W, was still popular amongst investors and a scheme had been floated before that scheme's official demise.

Competing schemes

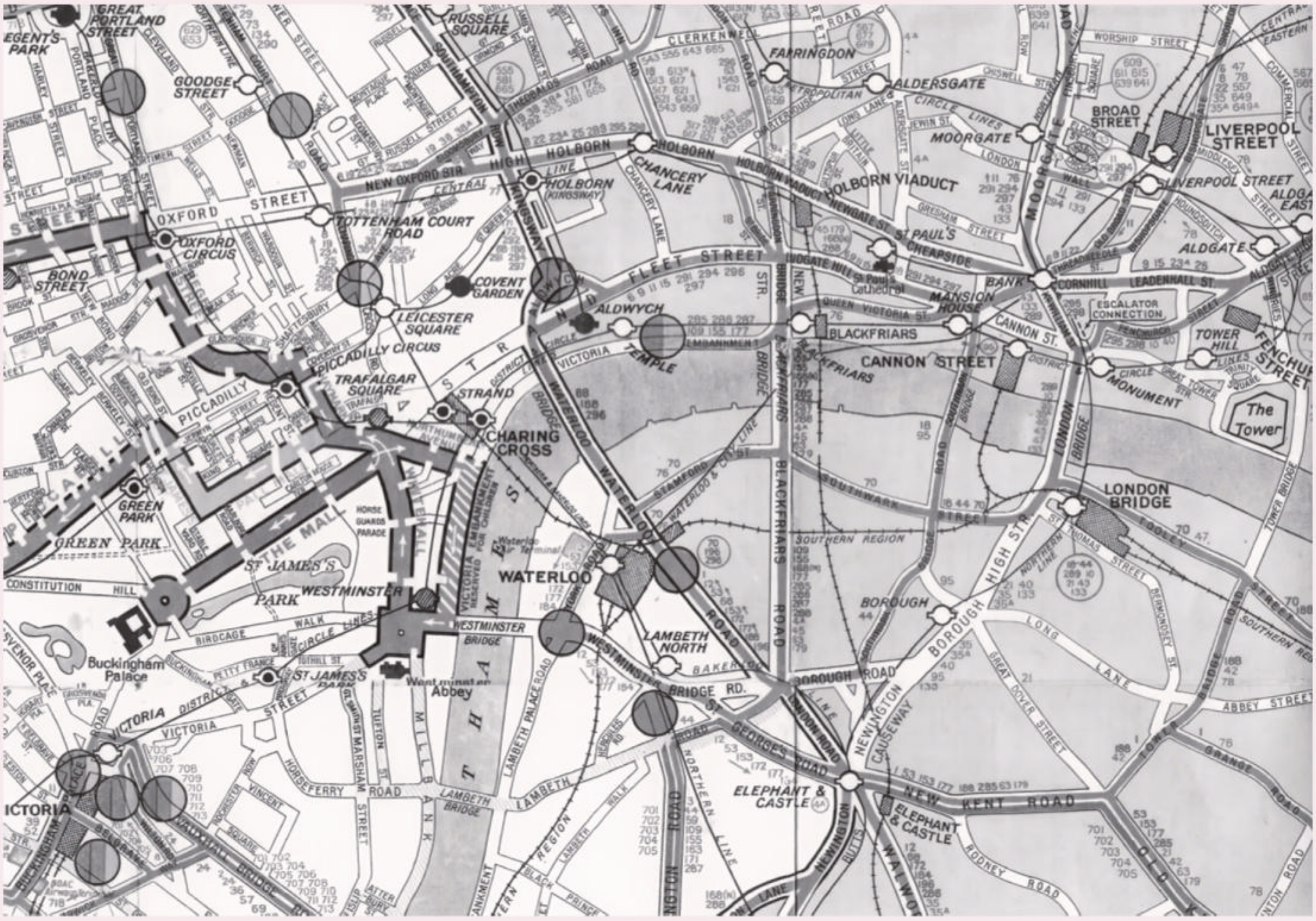
The *Evening Mail* newspaper of 4th December 1865 noted that no fewer than 450 new railways were being planned for the next Parliamentary Session; these included the W&W putting forward a Bill to extend its line from Waterloo to Newington Butts from where the Clapham & London Bridge Company proposed to form a junction in order to reach London Bridge via the Elephant & Castle. Another proposal at that time was the City and London Bridge Company which wanted to build a line eastwards from St. Thomas's Hospital and then under the river to Leadenhall Market from where it would run to the East Indian Railway House in Alderman's Walk.

A short paragraph in the *Chelmsford Chronicle* in late January 1866, as well as many other papers, referred to a crowded public meeting in Deptford "to take measure for promoting the formation of a subway for foot passengers and vehicles under the Thames from Deptford Green to the Isle of Dogs…"

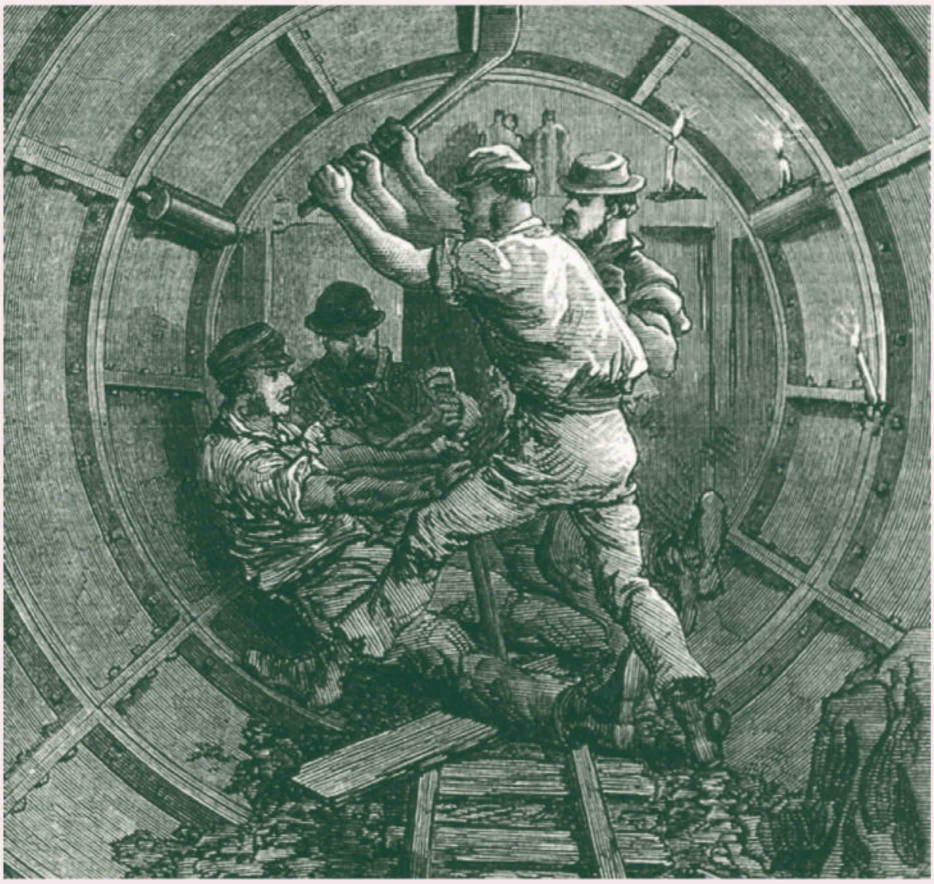
It was also to include vehicle roadways some 14ft wide while the footpaths were to be 3ft 6in in width – even in those days it seems that vehicular traffic would take priority over pedestrians. This scheme was reported in the *Shipping and Mercantile Gazette* of 13th October 1866 as having received Royal Assent during the previous session of Parliament; the Thames Subway Act 1866 provided for it to be 582 yards in length and compensation payments were to be made by the company to the operators of the Deptford, Poplar and Greenwich ferries. Although it had been approved the scheme came to naught in the end. Nevertheless a foot tunnel was opened many years later (on 4th August 1902) from Greenwich (near where the *Cutty Sark* is now entombed in concrete) to Island Gardens (near where the Docklands Light Railway also tunnels beneath the river). It had taken three years to excavate.

A separate plan was published in

This extract from a 1953 London Transport map gives an idea of where various bits of the Tube lie in relation to the River Thames.


GREAT PORTLAND STREET
REGENT'S PARK
GOODGE STREET
RUSSELL SQUARE
FARRINGDON
ALDERSGATE
MOORGATE
BROAD STREET
LIVERPOOL STREET
ALDGATE EAST
HOLBORN
HOLBORN (KINGSWAY)
CHANCERY LANE
HOLBORN VIADUCT
NEW OXFORD STR
TOTTENHAM COURT ROAD
OXFORD CIRCUS
BOND STREET
ST PAUL'S
ALDGATE
COVENT GARDEN
LEICESTER SQUARE
ALDWYCH
FLEET STREET
MANSION HOUSE
BANK
BLACKFRIARS
CANNON STREET
TOWER HILL
MONUMENT
The Tower
PICCADILLY CIRCUS
TRAFALGAR SQUARE
STRAND
CHARING CROSS
TEMPLE
GREEN PARK
ST JAMES'S PARK
WESTMINSTER
WATERLOO
LONDON BRIDGE
BOROUGH
LAMBETH NORTH
Buckingham Palace
Westminster Abbey
VICTORIA
ELEPHANT & CASTLE
NEW KENT ROAD

UBWAY



Operating the Greathead Shield while excavating the subway. (The Wellcome Collection)

December 1866 to provide no fewer than four separate subways at intervals along the river between Pimlico and the London Docks, all under the auspices of The London Subways Company. At the same time a Parliamentary Bill was published, the opening paragraph of which read "Whereas the making and maintaining the several Subways hereinafter mentioned under the River Thames with convenient approaches thereto, would be attended with great public and local advantage…"

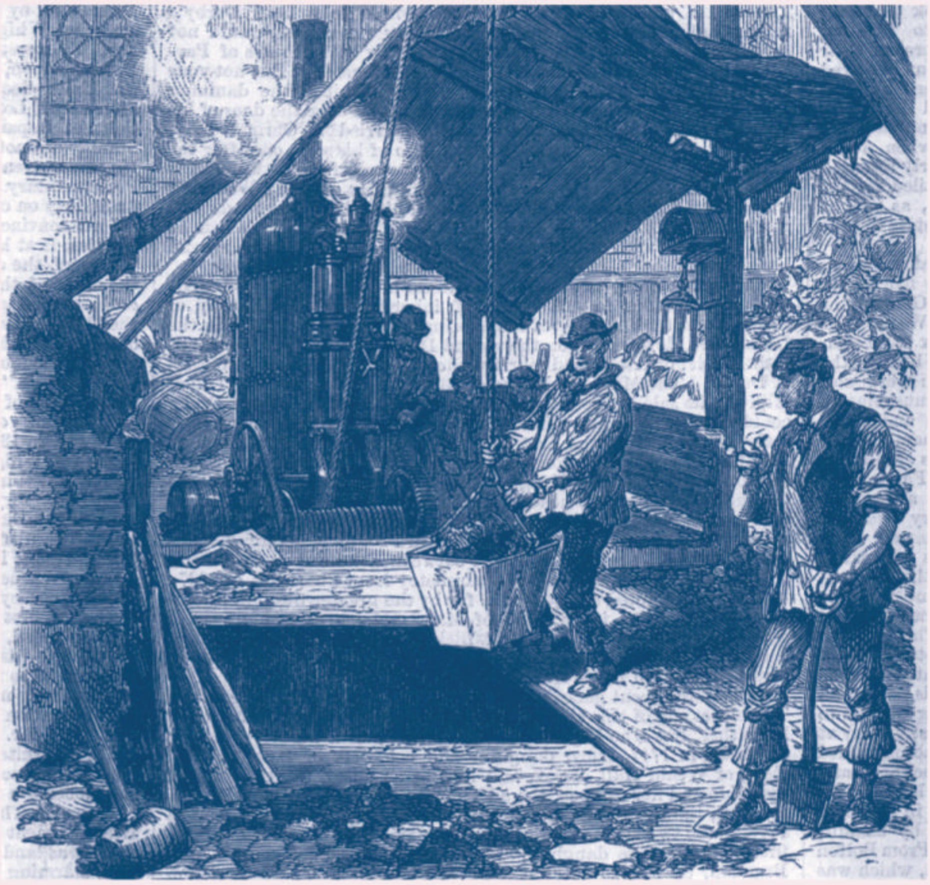
The proposed crossings were:

1. From Hanover Square near Pimlico Pier to the Parish of St. Mary, Battersea near the Nine Elms and Ponton Road junction
2. From the Thames Embankment North near Temple Pier in St .Clement Dane's Parish to Lambeth near the Commercial Road and Duke Street junction.
3. From the Tower Dock to Southwark
4. From St. John Wapping near Old Wapping Stairs to the north side of Bermondsey Wall near Cherry Garden Stairs

Six months later the same shipping publication noted that the Board of Trade (BoT) had reported to Parliament about the Bill's proposals.

During the subsequent Parliamentary scrutiny process the BoT's Harbour Department (prior to 1863 the Admiralty had held responsibility for all matters affecting harbours) had studied the Bill and prepared a report to Parliament; in this it had required certain clauses to be struck out of it, notably the authority to construct temporary works in the river. It seems that there must have been considerable opposition to these plans for when the Act was approved in the 1867 Session it only authorised a subway from Deptford Green to Clyde Wharf in Poplar together with an approach carriageway from West Ferry Road. The minimal press reports of its passing do not make it clear what the crossing method was to be although it may well have been for road carriages and foot passengers - at that time the term pedestrian tended to be used to describe road runners. In the event the tunnel was never constructed.

At the surface of the access shaft a bucket of spoil is being raised for transfer to a barge for disposal. (The Wellcome Collection)



The Tower Subway Company

This was not the end of attempts to provide alternative crossings to the rowing boat ferries for later that year a new company was formed, The Tower Subway Company, with the express intention of serving the City of London rather than the West End. This scheme was to start in Southwark and cross beneath the river to near the Tower of London. It was to consist of a single tunnel in which a 2ft 6in gauge railway line would be laid with a single passenger car being worked between Pickle Herring Stairs on Vine Lane, just to the north of Tooley Street, and a northern terminus beneath Great Tower Hill, immediately adjacent to the western side of the Tower of London. Once again the process of obtaining an Act of Parliament had to be complied with, the Tower Subway Bill being published on 18th December 1867.

At the time the Bill was announced the Board of Trade believed that the Thames Conservators had no objections to the scheme so it seemed likely that the promoters did not intend to interfere with the river or its traffic. Nevertheless it felt it would be prudent to seek confirmation of this point and, as it turned out, the Conservators did have some concerns after all. In spite of the company having said there would be no interference with the waterborne traffic, experience had shown that such good intentions as were expressed by promoters

This statue in Cornhill, seen on 11th June 2008, commemorates James Greathead as the engineer who built, as opposed to designed the theory of, the Greathead Shield which enabled such rapid progress on excavating the subway when compared with the crude original used by the Brunels when building the Rotherhithe Tunnel.
(Phillip Perry via Geograph/CC BY-SA 2.0)

were not always echoed in practice. The Subway was planned to be at the point on the river where there was the greatest amount of traffic and they felt therefore that "… nothing should be sanctioned which is likely to present any obstruction to it".

In March 1868 the BoT sent a report on this Bill to Parliament suggesting that it should include a clause requiring the company to deposit a bond for removing any unfinished or abandoned works in the river – it seems they had taken note of how the W&W scheme had ended. It also suggested there should be a number of other provisions such as to ensure that the tunnel will be sufficiently far beneath Trinity High Water Mark as not to interfere with dredging of the river bed. They felt that it should only be permitted to go ahead on the basis of a proper tunnel "...and not by Tubes like the Waterloo & Whitehall Railway scheme".

The company should also seek the agreement of the Conservators before any work started. When it received the Royal Assent the Tower Subway Act stipulated that the Subway would commence in "...the Liberty and Precincts of the Tower at or near the South-western Corner of Tower Hill" and that the southern terminus would be located " …in Vine Street Southwark near The Vine Public House...".

Note the use here of Vine Street, not Vine Lane which was where The Vine actually was located. Compulsory Purchase powers would be valid for five years although construction was to be completed within four years of the Act. Quite apart from satisfying the two Local Authorities (City of London and Southwark) it was mandated that the company had to be careful to avoid disturbing any water mains, sewerage or gas pipe systems on both sides of the river.

Construction of the Subway was bound to affect the earnings of the watermen who operated ferries to row travellers across the river and provisions to cover this aspect were included in the legislation. In each of the five years after the opening of the Subway the watermen and lightermen on the river were empowered to continue to lease the right to work the various Sunday ferries between London Bridge and the Hermitage entrance to the London Docks on the north side of the river. If there was anyshortfall by comparison with the five years before the Subway opened then the company was to pay them the difference. Smoking was not to be permitted and nor was any other 'Nuisance' to be committed in the Subway or the carriage.

The permitted tolls were limited to one penny per person or two pence for every truck, wheelbarrow or carriage and likewise for every ass, horse, mule or other animal. Knowing the size of the carriage it seems doubtful whether some of these could have been accommodated. There were, of course, exceptions to these tolls which included anyone or thing belonging to Her Majesty or any of the royal family (though just who was considered to be part of that institution was not laid down) or likewise for the Post-Master General, soldiers on duty or on march, or anyone connected with Her Majesty's forces or anyone travelling with vagrants or any prisoner sent by legal passes or warrant. Anyone who tried it on in respect of these exceptions was subject to the traditional fine of 40 shillings. As well as not charging Tolls for these assorted people, the Company was not to injure or damage any of the Fortifications and Works belonging to Her Majesty, by which was meant the Tower of London, unless authorised by the Secretary for War.

It sounds rather harsh that any toll collector if discharged, or the wife or widow or children if he had died, was required to vacate their house at two days' notice in writing. Any possessions could be taken "into possession of the Company at the order of a magistrate or Justice of the Peace".

In January 1869 the Harbours Department seems to have become aware of a cutting from the *Manchester Courier* newspaper which implied that the tunnelling was going ahead already although they, the officials, believed they had never given the work a formal go-ahead; whether this was necessary was probably considered to be debatable for Parliament had already approved the project. After some discussions had taken place a note in the file indicates that someone had decided to take a pragmatic approach to the situation, ie that if the Conservators had no problem with it then the BoT "…should have no more to do with it than with a rabbit's burrow".

According to the newspaper report a bridge had originally been proposed for the area where the Subway was being dug but the necessary height to allow ships to pass would have made it far too expensive to build. This problem was not solved for more than 25 years, not until Tower Bridge was opened.

Reports differ about just when construction work began, with some saying that it was during February 1869 – many years later, during 1943, *The Railway Magazine* (*RM*) said that it was on the 12th of that month with the northern access shaft starting four days later, while tunnelling began on 26th April with High Water Mark on the southern shore being reached on 8th September. This article also suggested that land acquisition for the southern access had taken longer than expected and so the overall construction was not completed until 20th December. The space between the linings and tunnel walls was filled with blue lias lime which would help to preserve the iron segments. Although the original estimate had been for £16,000, this was exceeded, partly because more powerful engines were installed than had been planned. The passenger car was said to have been attached to a cable at either end of the tunnel by a grip which was detached as it began to descend the incline although this description differs from that given by the Board of Trade inspector.

Construction

Raising funds went smoothly enough but finding a contractor who was prepared to undertake the work of burrowing beneath the river was a different matter altogether, with many declining to consider the job. The company's Engineer was Peter William Barlow CE who was the elder son of Professor Peter Barlow of the Royal Military Academy at Woolwich. Peter junior was employed by the South Eastern Railway on the task of constructing its line from London to Dover and was later appointed as Engineer-in-Chief for the company. He became a Fellow of the Royal Society in November 1845 and was later involved with a number of other railway companies in England and Ireland. In 1864 he patented an improved design of the tunnelling shield used by Marc Isambard Brunel on the Thames Tunnel but never actually built one. It was one of his pupils, South African-born James Henry Greathead, who improved the design and produced the first practical version. This was used to protect the workers cutting out the soil while inserting tunnel lining sections behind it as it moved forward. If work was actually started on 16th February 1869 this was coincidentally the 45th anniversary of work starting on Brunel's Thames Tunnel though the Subway was only expected to take about nine months as compared with the twelve years for the one from Wapping to Rotherhithe.

After work had begun a report appeared in *The Times* in which the worksite at Tower Hill was described as being "about the size of an ordinary kitchen with a small crane in the centre".

Access to the workings was by being lowered down the shaft by the crane while standing in a skip which needed very careful positioning to avoid it tilting and tipping the occupant down the shaft. The shaft was situated on Crown land and the Government was benefiting from this by charging the company at the rate of £150,000 per acre plus £10 per yard for the privilege of tunnelling beneath the Crown land. On top of this there was a further £3 per yard for the tunnel beneath the river on the Middlesex side. In total this amounted to about one tenth of the capital. The *Times* journalist considered that the Southwark Board of Works had been slightly less rapacious, only wanting about £200 for the southern shaft site.

Lighting in the tunnel workings was by candle and it was noticeably cooler beneath the river, James Greathead informing *The Times* man that it rarely varied from 40° Fahrenheit. In spite of having 22ft of clay above the tunnel it was possible to hear the steamers passing up and down the river above – a similar phenomenon was also experienced at the Geevor tin mine in Cornwall where it extended far out under the Atlantic although this time it was the waves that the miners would have heard.

The tramway in the tunnel was to be operated by a single carriage 10½ft in length, 5ft 3in wide and 5ft 11in high. Perhaps the average Victorian was shorter than people nowadays otherwise they would have had to stoop. The method of operation was novel: in the first 100ft or so the omnibus (as it was described) was to be pulled by a rope fixed to a stationary engine after which it would descend by its own velocity down the incline to the centre of the tunnel and this was expected to be sufficient to propel it up the incline on the other side to the foot of that shaft. Transit time was expected to be about three minutes and the railway would operate for sixteen hours daily. In the event the whole project was completed in not much more than a year.

The tunnel was 1,430ft in length and as the shield moved forward cast iron lining tubes ⅞in in thickness were inserted behind it. It lay 22ft beneath the river bed. The shaft at the Tower Hill end was 60ft deep and that at Vine Lane 50ft. Although the correct street name is Vine Lane various documents and reports do refer to Vine Street – although nothing to do with the one on the Monopoly board which is in the EC3 postal district. The total cost was £16,000, the Shield having moved forward by about five feet daily. Work had progressed sufficiently well by February 1870 that the first visitors were able to be taken to see the latest wonder.

Inspection

When it came to actually approving the apparently finished construction and opening to the public, however, the Board of Trade's Railway Department had different views to the Harbours Department and it required the line to be subject to all the normal rules for surface railways. These included a formal inspection before the public could be permitted to travel on it which was undertaken by Captain Tyler who reported his findings in great detail on 20th April 1870. His descriptions were rather more accurate than the suggestions made by *The Times's* reporter for he not only described what he had seen but also noted just how the tunnel had been constructed. He said the Shield had a hole in it (4ft 6in by 2ft 6in) through which the excavations took place – by hand with picks and shovels etc. The tunnel was lined with three cast iron segments to form a circular arch with a smaller key piece in the crown of it. All were bolted together by screw bolts and nuts, the bolts being 3¼in in diameter.

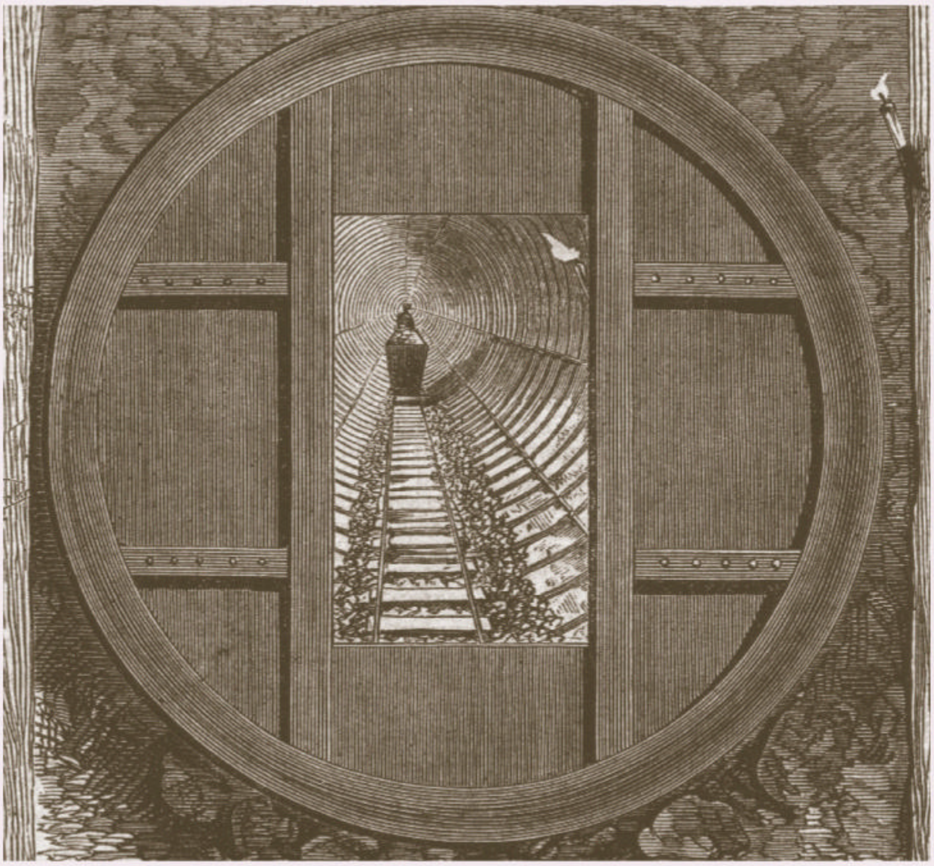
The rails were flat-bottomed (Tyler drew a sketch of a section through them) though he was less than impressed by the way they were secured to the wooden sleepers; it seems they were kept in alignment by blocks of concrete placed between the sleeper ends and the tunnel segments. Access from the surface was by means of lifts; a chamber at the foot of the lift shaft measured 10ft by 24ft and was intended to be a waiting area. The carriage was rather a snug fit in the tunnel for between it and the tunnel linings there was but three inches' clearance at the top, five inches in the middle and eighteen inches opposite the wheels. The wheelbase was 4ft 6in for the carriage wheels while there seem to have been a further set of four for steadying the vehicle which weighed about a ton though with a load of twelve passengers and a brakesman this could increase up to 2½ tons.

Gradients at each end were about 1 in 40 falling towards the centre off the tunnel – it was not a completely straight tunnel for there was a curved section about 80ft in length at the southern end. The wire rope was about one inch in circumference and, to avoid jerking this or the car, special steel springs in four feet long tubes were to be attached to the underside of the car. Provided the permanent way was kept in proper order the only danger Tyler could foresee would be if the car run at too great a velocity and struck the end of the tunnel. To ameliorate this possibility the company had installed sprung buffers incorporating vulcanised india-rubber springs attached to two iron rods as a primary arrester and then there were two timber baulks inclined at an angle to the tunnel.

The brakesman rode on a seat outside the leading end of the vehicle and had a treadle-operated brake to counter excess speed. Approaching the end of the line he would observe a light hung from the tunnel roof and this was the signal for him to illuminate first a green light and then a red one on the car. There was a single cylinder flywheel fitted steam engine sited at the end of the tunnel and when a bell was sounded from the far end of the tunnel the engineman turned on the steam to operate the rope, keeping it taut while the vehicle was in motion. Steam was to be shut off when the green and red lights became visible to a man located in the waiting chamber.

The iron lift cages weighed about 23cwt

A view from the rear of the Shield looking back along the partially completed tunnel. The wagon is taking away the spoil to be raised to the surface for dumping.
(The Wellcome Collection)



and were guided by rails fixed to the sides of the shafts. They were suspended from an iron chain ⅝in in diameter with a safe working load of three tons while a counterbalance weighed about 28cwt. The capacity of the cage was six persons and Tyler was adamant that this should be rigidly adhered to. Hydraulic power had been considered for their operation but the Engineer, Barlow, believed that steam power would enable faster lowering and raising of the cage. This was achieved by the use of a 5hp double cylinder engine, fed from the boiler which operated the rope engine.

A spring at the bottom of the shaft was a safety feature and this had been tested, albeit inadvertently, when the engineman forgot to shut off steam. The cage bounced several feet but the occupants were not injured though no doubt somewhat shocked – the apparatus was damaged, however. Tyler had suggested some modifications which had been accepted and would be incorporated. Another suggestion from the BoT Inspector concerned air flow while the car was in motion – he had noticed considerable draughts passing through the lift shaft chamber and felt that this would cause annoyance to people waiting there. Such a sensation can be felt when a train emerges from the tunnel on the Tube railways although the station tunnels are usually so large in diameter that the air rush is much less noticeable. He therefore suggested a roof should be installed in the chamber with air vents in it together with doors being fitted to the tunnel entrance in order to divert some of the air upwards and through the vents.

Another of his proposed alterations was that ‘speaking instruments’ should be provided between both ends of the line to supplement the electric bell communication system. Capt. Tyler recommended that should any similar systems be built in future it should be considered whether falling gradients from either end to a low point ought to be permitted.

In all the circumstances outlined he could only recommend opening the railway to traffic if and when all his suggestions are adopted and put into practice.

Accident investigation

Capt. Tyler went back again towards the end of June but this time he was in his rôle of accident investigator in respect of an incident which had occurred on the 23rd. At this time the Subway was not yet open for public traffic but a failure had occurred in the “valve spindle of the engine”. Tyler’s report did not say whether this was the rope haulage engine or the lift raising one but probably it was the former because the fireman had come to the surface in the lift. He went to the store room to collect a new bolt and on returning to the lift found that the operator had given the signal for it to descend; this meant that water would be pumped into the boiler. Not wishing to wait for any longer than he could avoid, the fireman pushed the doors open and fell down the shaft where he was crushed between the lift and the ground as it descended. It is not clear whether the Inspector meant the lift shaft sides or the bottom of it.

Tyler considered it to be essential that the sliding doors should be completely closed before the lift could descend and the proposed remedy was to install ‘portions of angle iron’ to the doors and lift to make it impossible to set the lift in motion from the top unless the doors were closed – they should also be locked before descending.

He returned once again on 4th July, his purpose on this occasion being to test the lifts but, as preparations were not complete, he could not do so. He therefore suggested a further modification to ensure that if the counterbalance weight should fall it would not injure passengers waiting at the foot of the shaft. Better ventilation was still required as was a means of diverting the draughts caused by the car pushing the air ahead of it. A file note by Tyler dated 27th July says he had tested one of the lifts “... the Safety Apparatus of which held well with a load equal to nine passengers, or half as much again as the usual load – the fall having been 1¾ inches when the pin was knocked out”. He could not test the second lift, however, as the pins could not be pushed out.

Rails to foot traffic

Eventually the Subway did begin to carry passengers but, according to the 1943 *RM* article, the rail-based scheme was not a success, there being frequent breakdowns of the mechanisms together with a number of minor accidents, although the nature of these was not spelled out. This view was not held by the Engineer to the company, Peter Barlow, for on 20th January 1871 he had written to the *Evening Standard* to correct an erroneous report which had appeared in a number of other newspapers; this had implied that the conversion to foot traffic had come about as a result of the failure of the machinery. Barlow said this simply was not true and it had been envisaged all along – the carriage was an experiment which proved that far more foot passengers could pass along the tunnel than they could on rails. The Subway had been opened to foot passengers from 24th December 1870 and traffic had increased from 10,000 to 20,000 in the first week. To achieve the conversion to foot traffic the lifts were removed, being replaced by spiral staircases. A new entrance on Tower Hill replaced the original one during 1871 and ventilation within the tunnel was improved.

It seems that as time went on maintenance and supervision of the users became less of a priority and many users treated the tunnel in much the same way as present-day subways are used – carelessly. A letter to the editor was published in the *East London Observer* on 18th December 1875 in which a complaint was laid that there was no lighting provided on the steps at the Vine Street entrance. The writer, H.A.B., went on to say the state of the interior of the Subway was “simply and filthily disgraceful” and suggested that a director of the company should walk through it morning and evening for a whole week. Meanwhile H.A.B. was not prepared to risk the Subway again until something had been done “...to remove the stench and cleanse the sides and pathway of this worse than common sewer”.

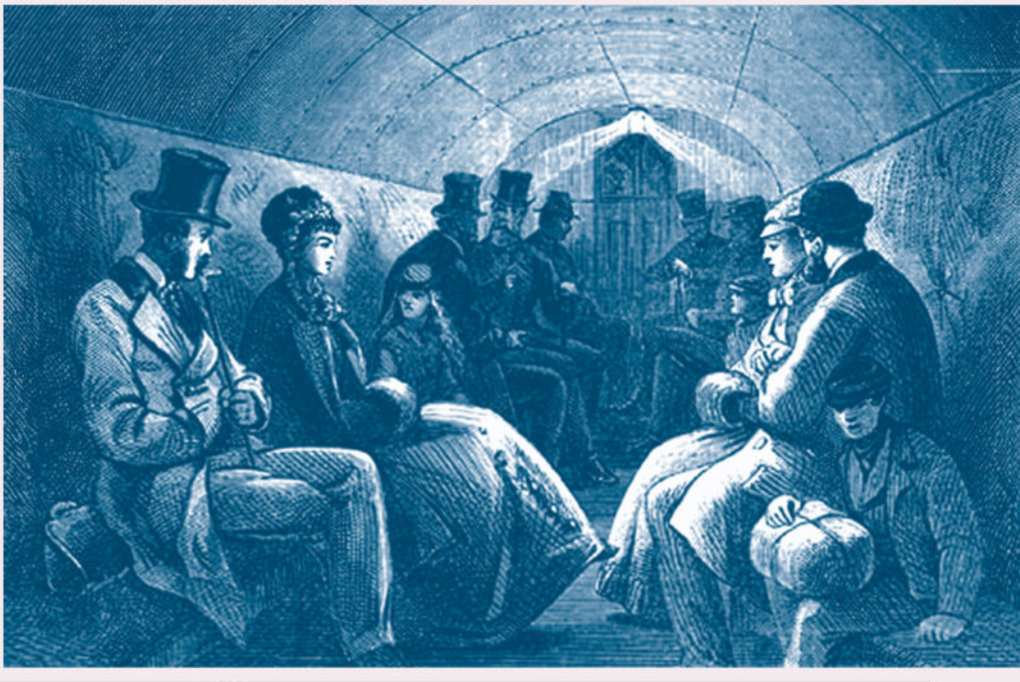
The same edition also contained news that the Whitechapel District Board was considering a proposal for a carriage road from the south end of the Minories then under the river to terminate in Horsleydown at Tooley Street in Bermondsey. There would also be a second road on the north side to meet the first one near Trinity Square.

Penalties

Henry Mason, a gunmaker, was charged at Southwark Police Court on 20th August 1877 with having extinguished the lights in the Subway without authority. He claimed he did not know why he had done so but was still fined five shillings.

On another occasion a sixteen-year-old errand boy was charged at Southwark Magistrates Court with extinguishing the lights in the Subway, having been caught in the act of doing so by two witnesses. He claimed he had only put out one light and didn’t know why he did so. His punishment was to be fined ten shillings with the alternative of seven days’ imprisonment.

BELOW AND RIGHT: **The Tower Subway car in use. Once the Subway was converted to a foot passage it seems the rails were simply left *in situ* with the gap between them filled with stone slabs or timber baulks.** (The Wellcome Collection)



Financial problems

It seems that even though the chairman of the company regularly reported to his shareholders on how everything was rosy and that dividends would be paid, all was not quite as he implied, so much so that a file held at The National Archives concerns a Chancery case against The Tower Subway Company. This shows that initial papers were dated as early as 7th January 1870 and that those making the claims were Thomas Greene, William Clowes, Rev. Albert Clowes, Rev. Henry Swaby, John Cobb Clowes, Cuxton Johnson and John Pennington. No details of the claim, either the amount or how it came about, seem to be available, however, but in mid-June 1870 a number of Law Reports in various newspapers refer to it being down for hearing that day, though there are no further reports of what transpired at those hearings. Shareholders were made aware in September that year that a Scheme of Arrangement had been filed at the Court of Chancery on the 16th and they were asked to agree to the details contained in it.

The Master of the Rolls appointed a Receiver on 17th November that year, which task was undertaken by Peter Barlow, 'at no additional cost'. This seems curious given that he was the company's Chairman and Engineer. A petition for the winding-up of the company was to be heard before Vice-Chancellor Sir R. Malins on various dates in 1871 including 13th January, 10th and 17th March although there appear to be no surviving reports of what transpired on those dates.

Byelaws

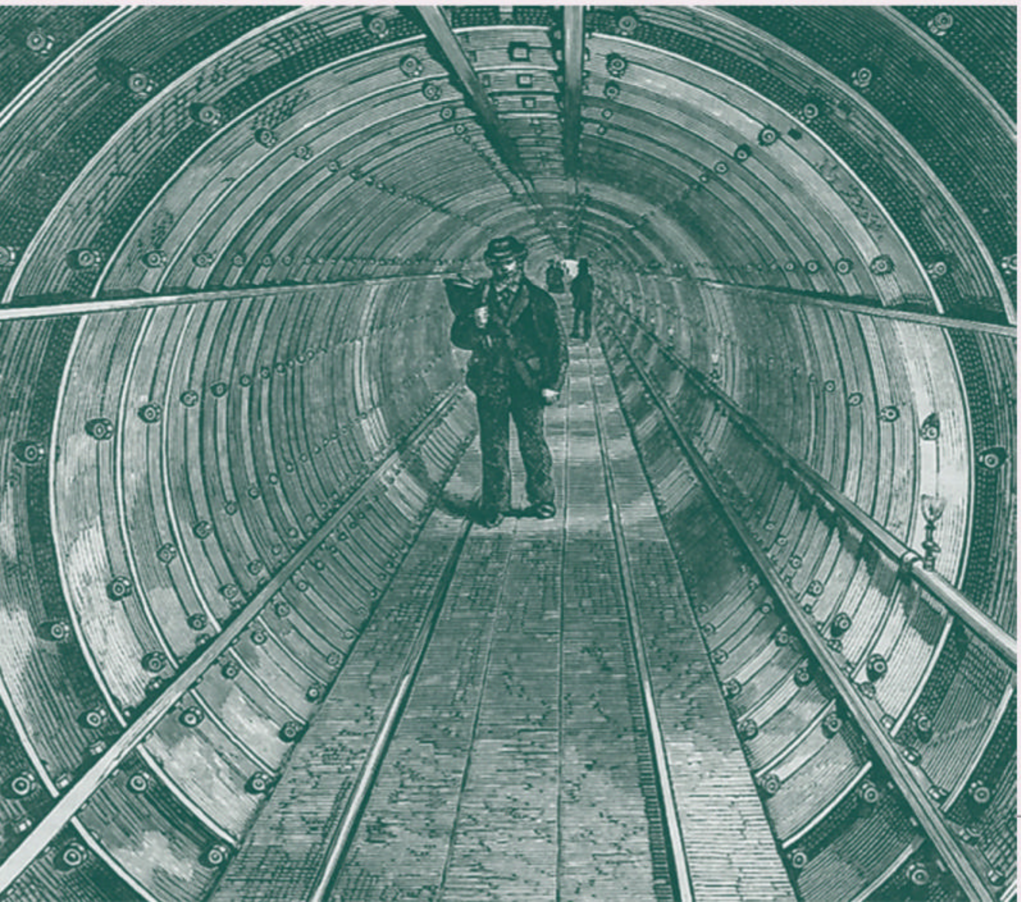
The first draft of the copany's Byelaws was dated 24th December 1869 and this was sent to the Board of Trade by its representatives, Elmslie Forsyth Sedgwick, for approval. The inspectors there must have thought these were over-complicated for they sent what was in effect a standard printed form of byelaws as used by most other railway companies. On 13th January 1870 the Company Secretary asked for exemption from the obligation to provide smoking compartments on the grounds of the peculiar formation of the subway and the shortness of time to traverse its entire length. The Board agreed with this suggestion and said that the Subway Company should hold an exemption from the requirements of the Regulation of Railways Act 1868, the company having a "stronger case than did the Metropolitan Railway". The next draft was based on various amendments to the BoT's printed version and was dated 19th January and these received formal approval from the Board on 21st January 1870.

Once the tunnel was given over to pedestrian traffic new byelaws became necessary and a draft was dated 17th March 1871. Six days after they had sent these in, the company sent a 'can you hurry up' type of letter as they were: "…being constantly annoyed by persons tampering with the gas and by other misdemeanours which we could deal with on the Byelaws being passed".

The BoT did not reply to this letter but the byelaws were approved on 28th March. They were available on a small folding card to anyone who might actually be interested. A law firm asked the BoT on 2nd August 1889 if it could be supplied with a copy of the byelaws because "The lessee of the Subway has charged some persons before one of the Metropolitan Magistrates under Rule 2 of the enclosed Byelaws for putting out the gas in the Subway". Although it does not specifically say it was acting on behalf of the accused this is the implication.

Final days

When Tower Bridge opened on 30th June 1894 no charge was made for walking or driving across it and this very soon led to the Subway being declared obsolete and closed to the public. It then passed into the ownership of the London Hydraulic Power Company which installed its water mains in the tunnel. Later these were augmented by those of the Metropolitan Water Company and nowadays it carries telecommunications cables.



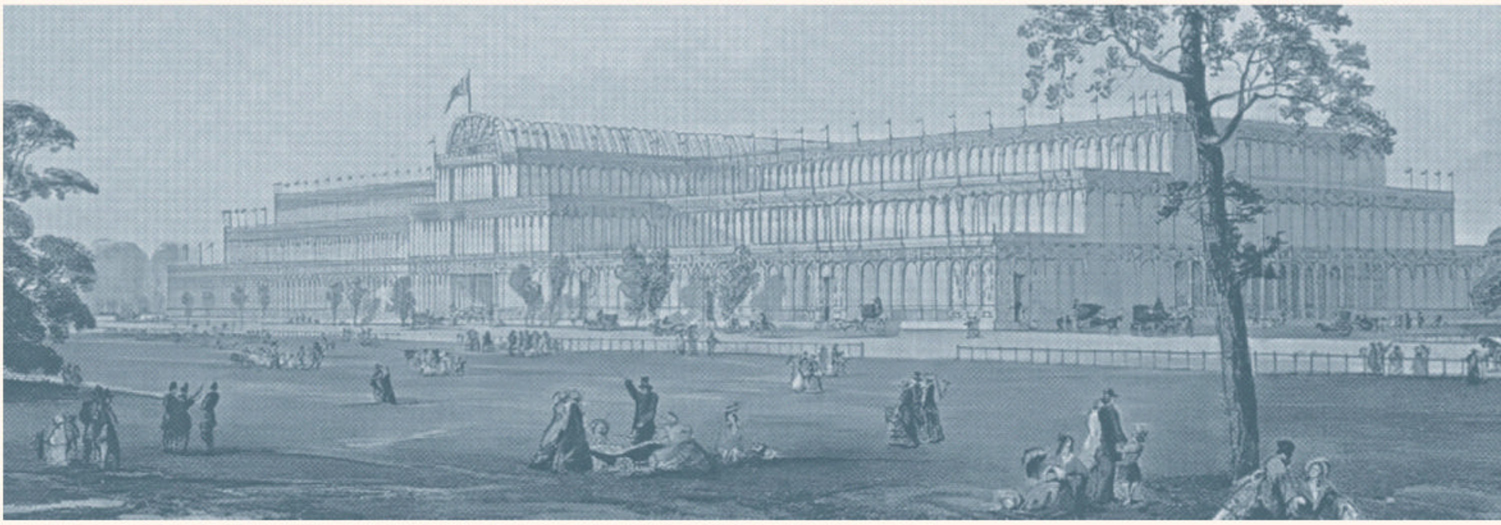
The Southwark Subway

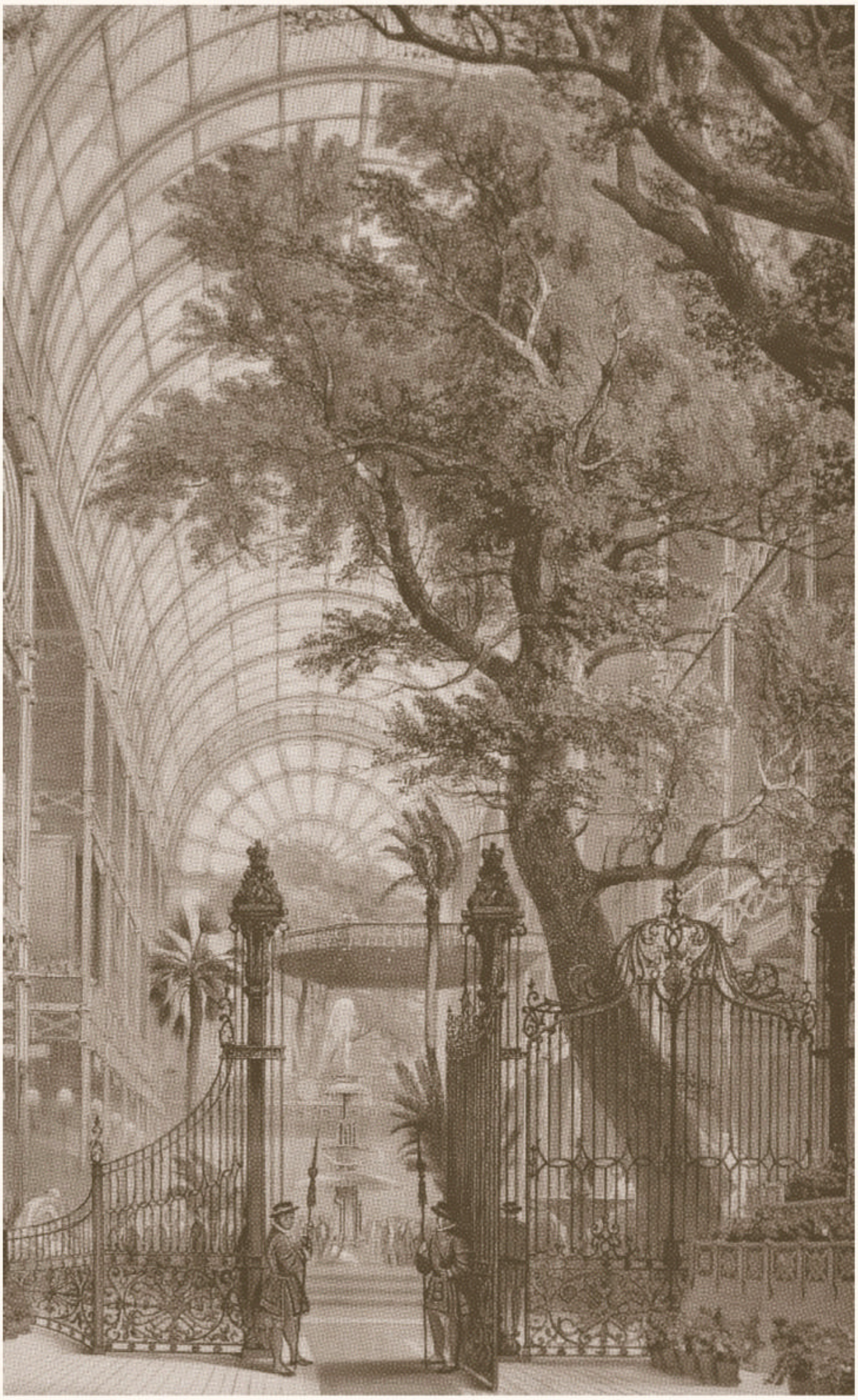
It seems curious that, so soon after the very evident failure of the Subway in its rail-borne format, a new scheme should be announced by advertisements in the *Birmingham Daily Gazette* and a number of other newspapers intimating that a Southwark and City Subway Company was being formed with the intention of making "… an underground railway from St. George's Church Southwark to the City".

Apparently its intention was to provide relief to the "…present enormous traffic passing along High Street Borough near London Bridge" and to connect the City with the Tramways which terminated on the south side of the Thames. According to the preamble it would be incorporated by a Special Act of Parliament and one of the directors was Charles Banks Esq of Westminster Chambers who was already a director of the Tower Subway Company. The same firm of Engineers, Peter W. Barlow FRS and Son of 16 Great George Street SW, would represent the new company. The Parliamentary powers would enable construction of an Underground railway from St. George's Church in the Borough via the junction of Black Swan Street and Great Dover Street, under High Street thence beneath the river and terminating in Arthur Street West, close to King William Street and Cannon Street. The Prospectus noted that it had been suggested in 1855 that about 60 million people crossed London Bridge annually and it was known that many more had done so since. No tramways crossed London Bridge because so many objections had been received to the suggestions of doing so.

The Southwark line would be built in the same fashion as had been the Tower Subway but the tunnel would be half as large again in diameter. The railway would be cable operated and fresh air would be constantly pumped into the tunnel. It was not explained whether the cable would be continuous or attached fore and aft to the car(s) as in the Tower scheme, nor were references made to the failure of that project. Trains would run every five minutes from either end and it was expected that they would carry, on average, 36 passengers although the maximum accommodation would be 108 per train. On this basis the expected revenue would be £24,163 and working expenses £8,034 giving a surplus of £16,108 – a return of 16% on capital. Shares, at £11 each with a minimum purchase of ten, could be obtained from the company at either 6 Victoria Street, Westminster, or from the brokers A. & W. Richards of 11 Angel Court, Bank. The closing date for applications was 15th August for London-based punters and a day later for those in the country.

Quoting *The Railway Magazine* article again, the proposed scheme was abandoned when the expected financial support failed to materialise although some of the proposed route was later used by Greathead when he was involved with the King William Street to Borough and Elephant & Castle scheme which later morphed into the City & South London Railway.





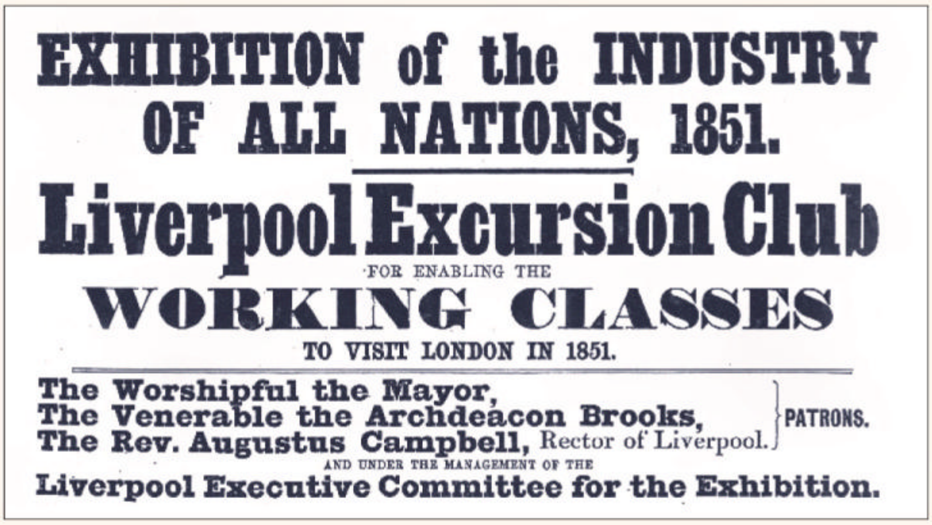
'THE ADVEN
RAIL TO TH

BY GEOFFREY SKELSEY LVO

When Prince Albert, the Prince Consort, was driven to Hyde Park on a rainy morning in October 1851 it was to mark the closure of one of the most remarkable and influential ventures of modern times: 'The Great Exhibition of the Works of All Nations' had been nine months in planning and construction and it became the defining enterprise of its era. The Prince had been foremost amongst advocates of an international manufacturing showcase and his support was critical in helping to launch the project amidst initial scepticism. In January 1850 the Queen appointed a twenty-four man Royal Commission to plan and manage the event. Its first task was to find a suitable location and – not without controversy – Hyde Park was made available. The chosen site, about 650 yards long, was on the south edge of the Park, parallel with the South Carriage Drive and Knightsbridge. To locate it on a modern street plan, the centre of the building, and the main South Entrance, were opposite Rutland Gate. The concrete footings which supported the columns

TOP: **A fine contemporary view of the Palace in Hyde Park, illustrating perfectly its simple tiered design including the central 'transept' with an arched roof accommodating full-sized elm trees.** (Author's Collection)

LEFT: **This interior view shows one of the 'transepts' with the elm trees, one of the chief talking points of the Exhibition. The ornate railings and iron gates were constructed by the Coalbrookdale foundry in Shropshire. The Yeoman Warders are present to attend on the Queen as she came to open the Exhibition on 1st May 1851. On the left of the view can be seen the tiered construction of the building, with standard iron columns. The ribs of the roof in this section were wooden.** (Author's Collection)



EXHIBITION of the INDUSTRY
OF ALL NATIONS, 1851.
Liverpool Excursion Club
FOR ENABLING THE
WORKING CLASSES
TO VISIT LONDON IN 1851.
The Worshipful the Mayor,
The Venerable the Archdeacon Brooks, } PATRONS.
The Rev. Augustus Campbell, Rector of Liverpool.
AND UNDER THE MANAGEMENT OF THE
Liverpool Executive Committee for the Exhibition.

The Exhibition was funded by subscriptions from towns and cities and local bodies sponsored organisations such as this, providing facilities for visitors to Hyde Park. A particular (and successful) effort was made to encourage working people to attend. The prominent supporters guaranteed probity in managing savings schemes and arranging reliable travel and accommodation.

NT OF MODERNITY’ BY E CRYSTAL PALACE

are still in place beneath the grass, occasionally revealed in dry seasons on aerial photographs. As would be the case today, having agreed not to seek public finance, the Commission devoted great efforts to fundraising and sought subscriptions through local committees across the land, and from personal appeals to wealthy individuals. At a crucial stage the railway contractor Samuel Morton Peto offered a huge guarantee, equivalent to nearly £9 million today. His was the first of several. A womens’ appeal committee was also appointed, chaired by the Duchess of Sutherland.

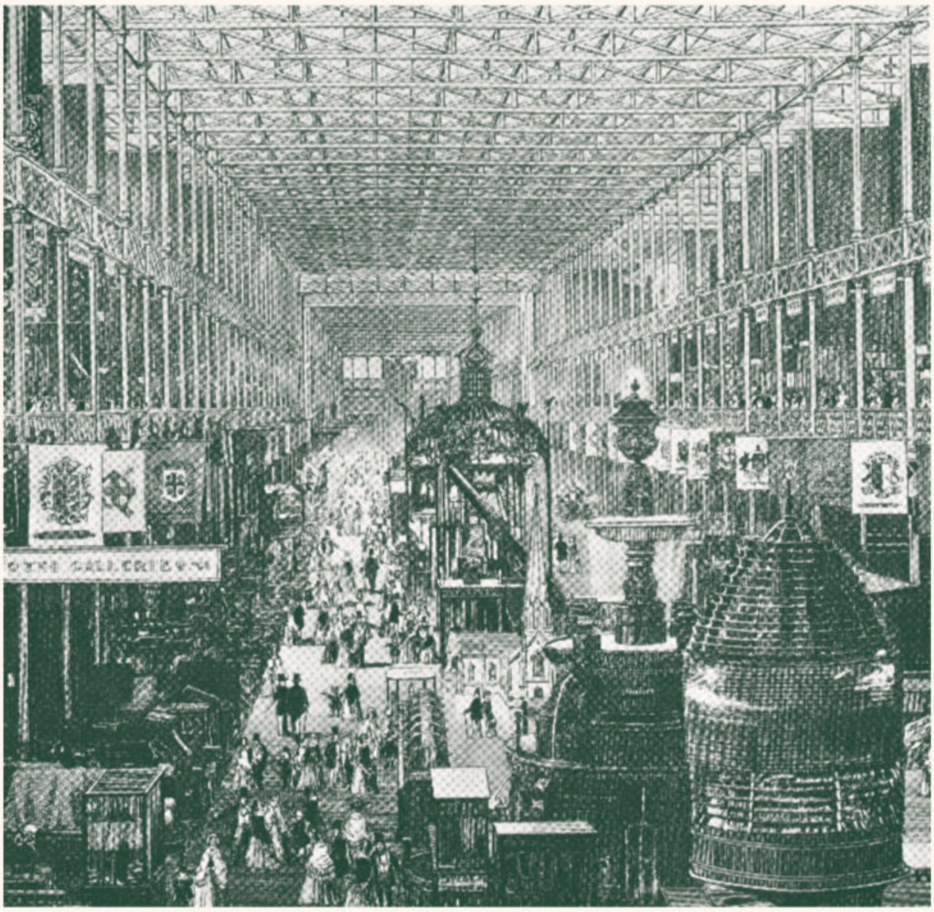
A prodigy is born

Those visiting the exhibition were struck by the immense range of exhibits from around the world but equally so by the structure itself, a huge and seemingly insubstantial iron and glass temple, which a clever journalist had dubbed ‘the Crystal Palace’. The guiding mind behind the building was that of Joseph Paxton (1803-1865), previously head gardener to the Duke of Devonshire at Chatsworth, where some years before he had designed a huge conservatory, whose delicate membering and vast areas of glazing anticipated the style of the Palace. Quite apart from his self-taught design skills, Paxton was also a master of logistics, a term used from 1846 to describe the organisation of manufacture, transport and delivery. The chosen contractors, Fox, Henderson & Company, well-established in railway circles, gained access to the site at the end of July 1850 and erection began on 22nd September, taking 22 weeks. They employed never fewer than 2,000 labourers (including some from overseas, let it be whispered). Exhibitors were able to enter the Palace from 12th February 1851 and the Queen opened it as planned on 1st May, a public holiday. There were eventually 7,381 British exhibitors and 6,556 foreign, emphasising the truly international nature of the event.

Despite the niggling of naysayers and conspiracists, the Exhibition had been an overwhelming success in every way, far exceeding expectations. There had been none of the feared disorder, crime or epidemics and there were over six million paying visitors, allowing for repeat visits perhaps equivalent to a fifth of the total population of Great Britain. When the accounts were settled a few months later they showed that the Exhibition had earned a surplus of £180,000 after repaying loans, about £15 million in modern money. This was partly devoted (at Prince Albert’s suggestion) to buying the site of what became the South Kensington museums and the Imperial Institute, a district jokingly named ‘Albertopolis’. Notably the ‘Royal Commission for the Exhibition of 1851’ still exists today, administering the sizeable balance, carefully husbanded over 150 years. Its purpose, consistent with the original aims of the Exhibition, is to “increase the means of industrial education and extend the influence of science and art upon productive industry”, as necessary today as it was in 1851.

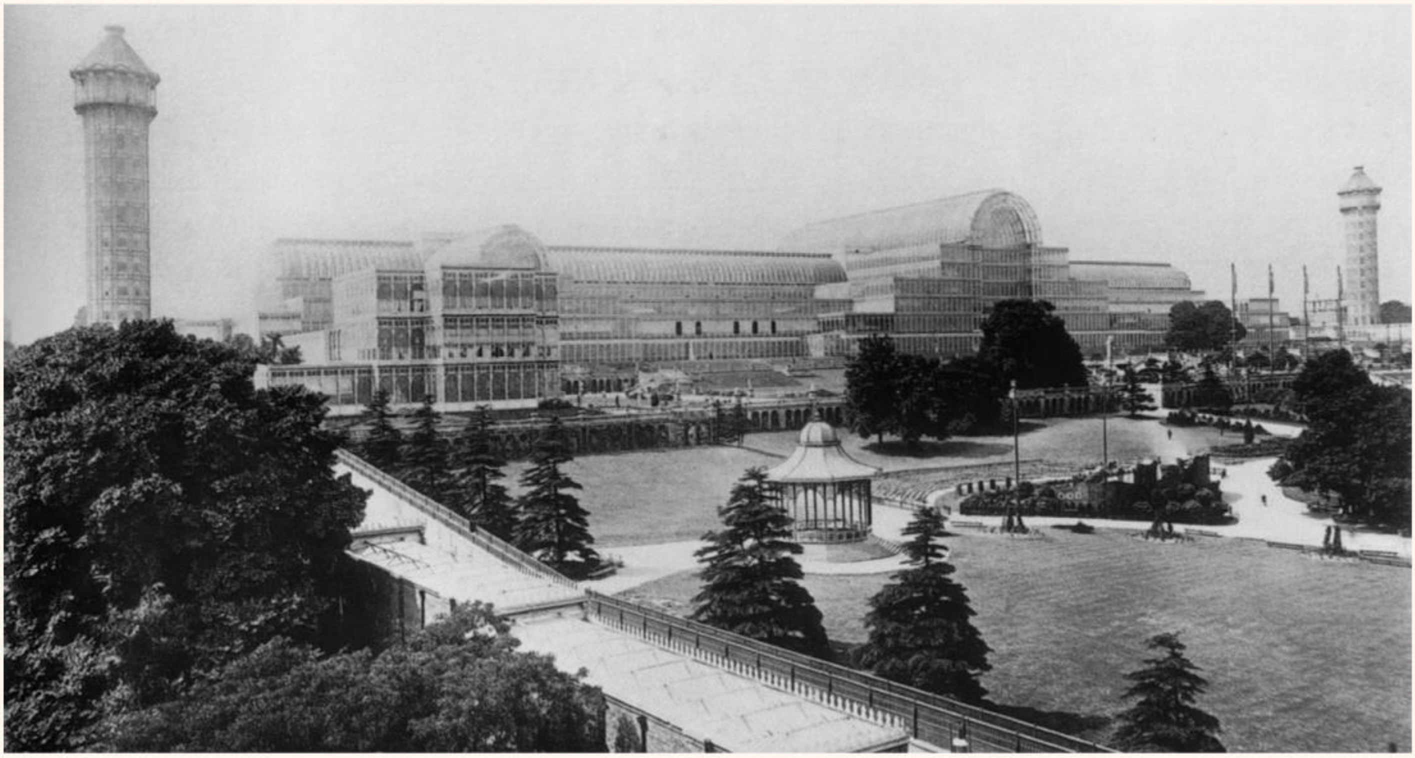
Joseph Paxton was also a director of the Midland Railway and was therefore well-placed to encourage special arrangements for rail travel, including both group arrangements and individual tickets, with inclusive fares and admission charges. By 1851 most large towns and cities in England were served by rail and passage between them and London existed if not

In this view we are looking along the principal axis of the Palace, noting the construction on each side with iron columns supporting the upper gallery. This is the British section and in the right foreground can be seen a revolving lamp as used in lighthouses, manufactured, like the glazing, by the firm of Chance Brothers of West Bromwich. (Author’s Collection)



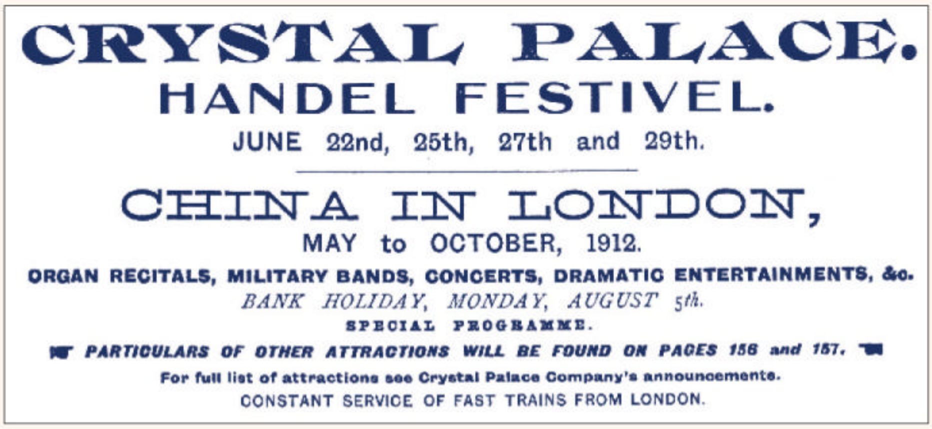
The Palm House at Kew Gardens was completed in 1848, one of the earliest examples of wrought iron construction. The principal designer was Decimus Burton, also responsible for railings, gates and other structures in Hyde Park. A building like this at Chatsworth House brought Joseph Paxton to attention and anticipated features of the Palace. Notice on the right in this view the projecting section with an arched roof, similar to the 'transepts' of the Palace. (Author)

A postcard view of the reconstructed Palace on Sydenham Hill. Comparison with the Hyde Park scene shows how different the building was, with far more elaborate features. As can be seen it had two gallery levels, enlarging the display space. It stands on an arched plinth, parts of which can still be seen. The tall towers at either end were water towers, designed by I. K. Brunel, providing 'headers' for the fountains in the grounds. The covered structure in the left foreground is the walkway from the Low Level railway station. Notice that the building is now asymmetrical, with a 'transept' as the nearer end but not the far: the missing section was destroyed by fire in 1866 and never restored. (Commercial postcard)



always by the most direct route. Taking account of intermediate stations, many hundreds of communities could respond to the enticing prospect of the Exhibition. No previous event had attracted such crowds of visitors, of all classes and from all parts, and it has been estimated that as many as a million extra passengers travelled by rail to London.

There had been other exhibitions, at home and abroad, and large glazed structures had been established for some years in parks and gardens, and of course at contemporary railway stations such as Liverpool Lime Street (1849). However, the pace at which the Palace had been built, its size, and its functionality, were widely admired. Its strength was assessed theoretically beforehand but the structure was also thoroughly tested during construction, using members of the armed forces to prove its stability in gales and precipitation: it turned out that storms had no effect. The only systemic fault seems to have been leakage from the roof in heavy rain, possibly because mastic sealing of the glazing was still imperfect. Amongst the engineering consultants were William Barlow and John Cochrane, who were later to be expert witnesses in the Tay Bridge inquiry.


CRYSTAL PALACE.
HANDEL FESTIVEL.
JUNE 22nd, 25th, 27th and 29th.
CHINA IN LONDON,
MAY to OCTOBER, 1912.
ORGAN RECITALS, MILITARY BANDS, CONCERTS, DRAMATIC ENTERTAINMENTS, &c.
BANK HOLIDAY, MONDAY, AUGUST 5th.
SPECIAL PROGRAMME.
☛ *PARTICULARS OF OTHER ATTRACTIONS WILL BE FOUND ON PAGES 156 and 157.* ☚
For full list of attractions see Crystal Palace Company's announcements.
CONSTANT SERVICE OF FAST TRAINS FROM LONDON.

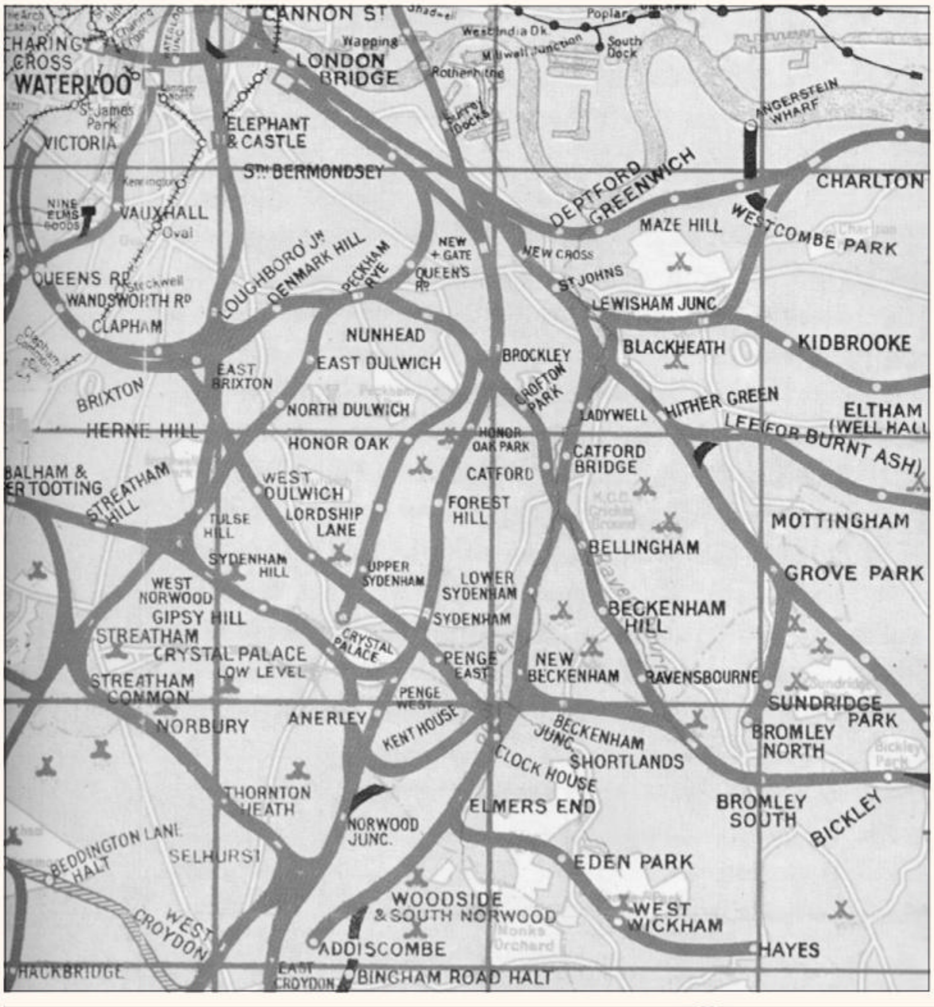
The LBSCR, having invested heavily in the new Palace, vigorously advertised its special events, offering a 'constant' service of trains. The prominent spelling mistake obviously missed the proof-reader but there was probably a rebuke later.

The role of rail

The Times, beginning as a critic of the venture but later changing its editorial mind, enthused that "…it took three hundred years to build St. Peter's… this has taken three months". Such advocacy stimulated public interest beyond London. Attendance at the Exhibition from around the land was only made possible by rail travel, the first great test of the evolving system. The renowned Thomas Cook, beginning his successful career, arranged long-distance inclusive excursions, using chartered trains, and in all the firm conveyed 165,000 visitors to London. The late Professor H. P. White described these floods of excursionists reaching Euston, King's Cross and Paddington as "the first mass movement on pleasure bent of the working classes". There were also nearly 60,000 foreign visitors in Great Britain, almost three times the total for the previous year.

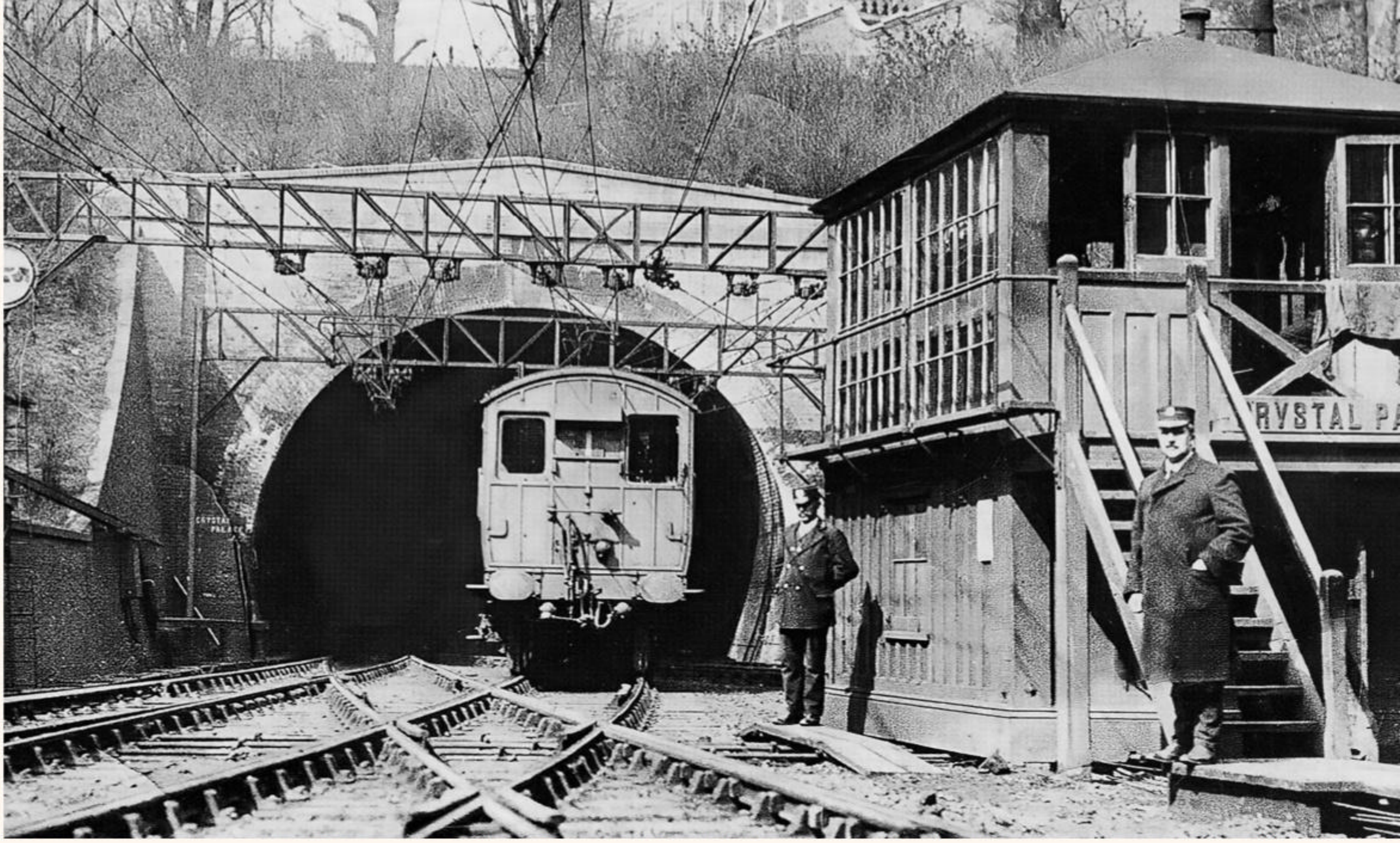
The busiest day saw 109,915 admissions, at one shilling each, about £4 modern terms, which would have excluded the poorest of the population. However, many benevolent landowners and employers paid for their workers to undertake what would have been the trip of a lifetime and local savings clubs were also set up. Admission prices were carefully delineated and varied from week to week. The wealthy could buy season tickets and many thousands did (including the Queen) but all accounts refer to the mingling of different classes, the first time this had happened on such a scale, and educative to all parties.

This period diagram shows the competing railway routes to the Palace.


CANNON ST
CHARING CROSS
WATERLOO
LONDON BRIDGE
Wapping
Rotherhithe
West India Dk
Millwall Junction
Poplar
South Dock
Surrey Docks
St James Park
VICTORIA
ELEPHANT & CASTLE
STH BERMONDSEY
ANGERSTEIN WHARF
CHARLTON
NINE ELMS GOODS
Kennington
VAUXHALL
Oval
DEPTFORD
GREENWICH
MAZE HILL
WESTCOMBE PARK
QUEENS RD
Stockwell
WANDSWORTH RD
LOUGHBORO' JN
DENMARK HILL
PECKHAM RYE
NEW + GATE
QUEEN'S RD
NEW CROSS
ST JOHNS
LEWISHAM JUNC
CLAPHAM
NUNHEAD
BLACKHEATH
KIDBROOKE
EAST DULWICH
EAST BRIXTON
BROCKLEY
CROFTON PARK
BRIXTON
NORTH DULWICH
LADYWELL
HITHER GREEN
ELTHAM (WELL HALL)
LEE
FOR BURNT ASH
HERNE HILL
HONOR OAK
HONOR OAK PARK
CATFORD BRIDGE
BALHAM & TOOTING
STREATHAM HILL
WEST DULWICH
CATFORD
FOREST HILL
LORDSHIP LANE
TULSE HILL
MOTTINGHAM
BELLINGHAM
SYDENHAM HILL
UPPER SYDENHAM
LOWER SYDENHAM
GROVE PARK
WEST NORWOOD
GIPSY HILL
SYDENHAM
BECKENHAM HILL
STREATHAM
CRYSTAL PALACE
CRYSTAL PALACE LOW LEVEL
PENGE EAST
NEW BECKENHAM
RAVENSBOURNE
STREATHAM COMMON
PENGE WEST
SUNDRIDGE PARK
NORBURY
ANERLEY
KENT HOUSE
BECKENHAM JUNC
BROMLEY NORTH
SHORTLANDS
CLOCK HOUSE
THORNTON HEATH
ELMERS END
BROMLEY SOUTH
BICKLEY
BEDDINGTON LANE HALT
SELHURST
NORWOOD JUNC.
EDEN PARK
WEST CROYDON
WOODSIDE & SOUTH NORWOOD
WEST WICKHAM
ADDISCOMBE
HAYES
HACKBRIDGE
EAST CROYDON
BINGHAM ROAD HALT

Delivery of the building's components, especially the myriad panes of glass and the iron columns, was a crucial process. The glazing came from Chance Brothers in West Bromwich and the ironwork from nearby Dudley. The direct railways to London had yet to be opened and so the material would either have been carted several miles through the streets to the nearest station, or perhaps more probably, consigned by canal. For the glazing this would have had the merit of reducing jolting and breakage. It would have been slower, of course, but what mattered to the contractors was the certainty of delivery rather than the transit time and Chance Brothers would have developed efficient procedures for consigning delicate material since their works opened in 1822. The components were despatched day by day from the manufacturers so as to arrive when the contractors needed them, what we would now describe as a 'just-in-time supply chain', unprecedented on this scale. It would be good to learn for sure what the transport arrangements were.

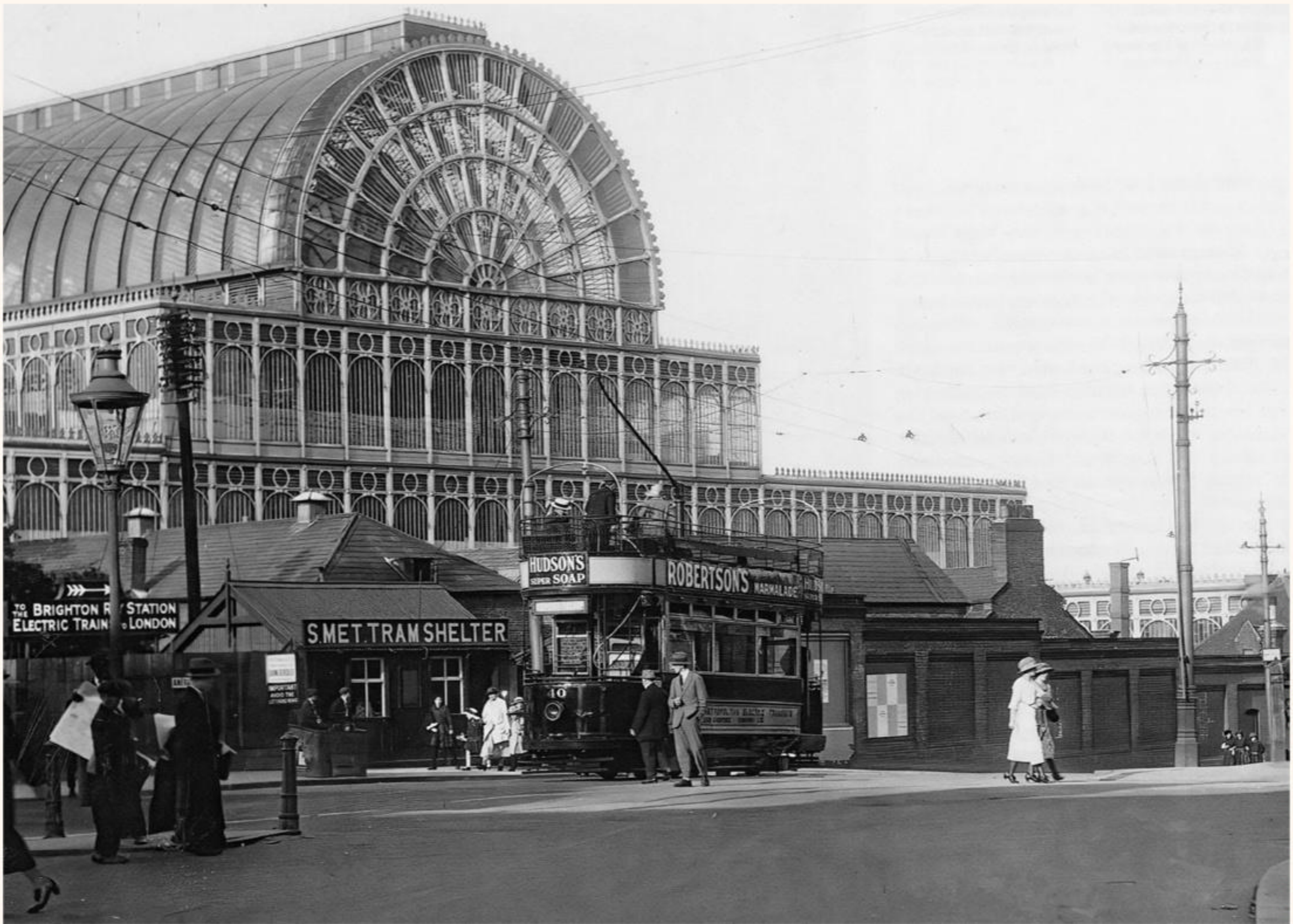
It is a constant surprise to find how 'modern' the project was. It was (aptly) 1,851ft long (three feet had been added to ensure this resonant statistic), 408ft broad and 66ft high: the largest man-made structure in existence. It was clad in nearly one million square feet of glass, more than England's whole production only a few years before. The design was modular, as it would be now, with repeating bays, each 24ft wide, their dimensions determined by those of the 293,655 individual panes of glass, each 49 by 10 inches: the workers were incentivised by the target of each fitting 58 panes a day. The cast iron columns were hollow and served as downpipes for rainwater falling on the huge roof. These columns, and the prefabricated girders, were also of standard dimensions, designed to be bolted together like a vast Meccano set, and requiring limited skills. Paxton himself noted that three columns and one girder were erected every sixteen minutes. They could also be easily dismantled at the end, necessarily because occupation of the Park site was strictly limited. The versatile components of the structure made it possible to install galleries in the 'nave' section, much

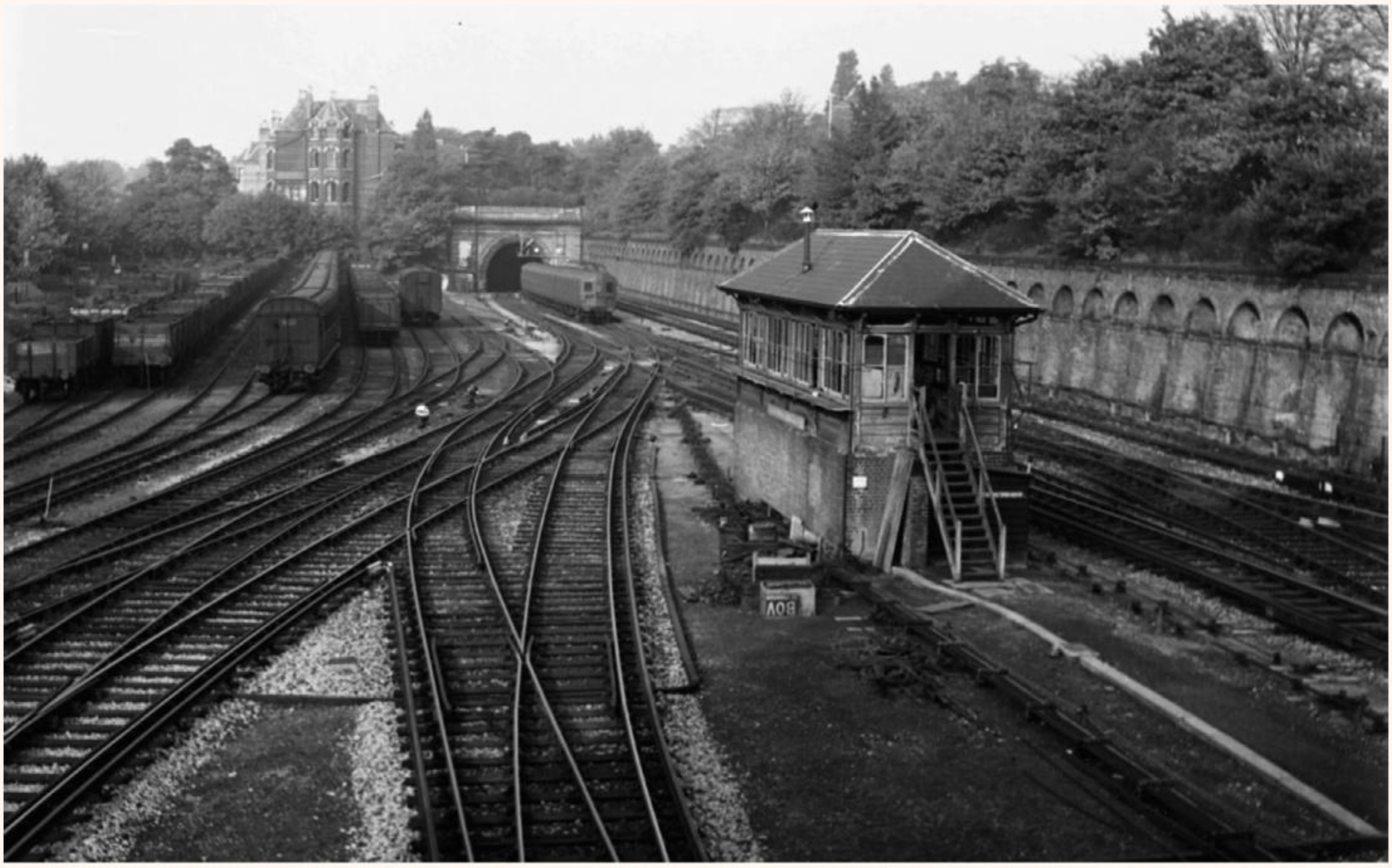


The Crystal Palace line was electrified by the LBSCR in 1911, on the overhead system as seen here at the mouth of Crystal Palace Tunnel, the train entering what was later termed the 'Low Level' station. The unit is one of 34 built for the service by the Metropolitan Carriage & Wagon Company at Saltley, Birmingham.

increasing available space: there were to be over 12,000 displays. In its Hyde Park form the boxy shape of the structure was divided into two by a taller 'transept' with a semi-circular roof: this was high enough to accommodate two existing elm trees, one of the most striking features of the Palace. In fact to accommodate them the Palace was slightly asymmetrical. The trees survived their year's captivity but were later to be destroyed by disease, along with all the others.

A dramatic scene at the top of Anerley Hill gives an impression of the overwhelming mass of the southern end of the second Palace, dominating its surroundings. The open-topped tram, built in 1902, is operated by the South Metropolitan Electric Tramways and Lighting Co. ('Southmet'), part of the Underground Group. The company provided a modest shelter and office, but notice at the far left an advertisement directing passengers to the LBSC 'electric trains'. The trams were replaced by trolleybuses in February 1936. (Commercial postcard)





A train approaching the High Level terminus in 1953, emerging from Paxton Tunnel. The Palace was beyond the retaining wall on the right.
(Lens of Sutton/D. Callum)

Naturally there was more to the structure than iron and glass and another element during construction was the use of steam-powered machines to cut, plane and groove timber on the site. The construction site was fenced off by a tall wooden wall nearly a mile in length and a nice feature was that the dimensions of this allowed its components to be used later as flooring. The semi-circular arched structure above the transept was also fabricated from wood. Even some of those whom one would have expected to have deplored repetitive glazing and prefabrication admired the Palace: the ardent Gothicist George Gilbert Scott wrote in 1858 that it was "self-evident…that the triumph of modern metallic construction opens out a perfectly new field for architectural development".

Needless to say, given its era, there were many railway items amongst the exhibits, most notably the Great Western's mighty broad gauge locomotive *Lord of the Isles* (imagine that being hauled through London's streets by teams of horses). There were also displays of track components, signalling, telegraphy and rolling stock. There were refreshment areas to suit tastes and pockets and those of us who have heard so often of curling sandwiches are not surprised to learn that the fare was not always admired. The contractors were a certain firm from Switzerland, Messrs. Schweppes. There were also free drinking fountains and conveniently, public lavatories, then rare in London. There was, of course, as yet no affordable local transport in central London, apart from river steamers, and so excursionists from afar had to march in groups from the terminus stations. To organise them participants were issued with differently coloured rosettes to identify each party.

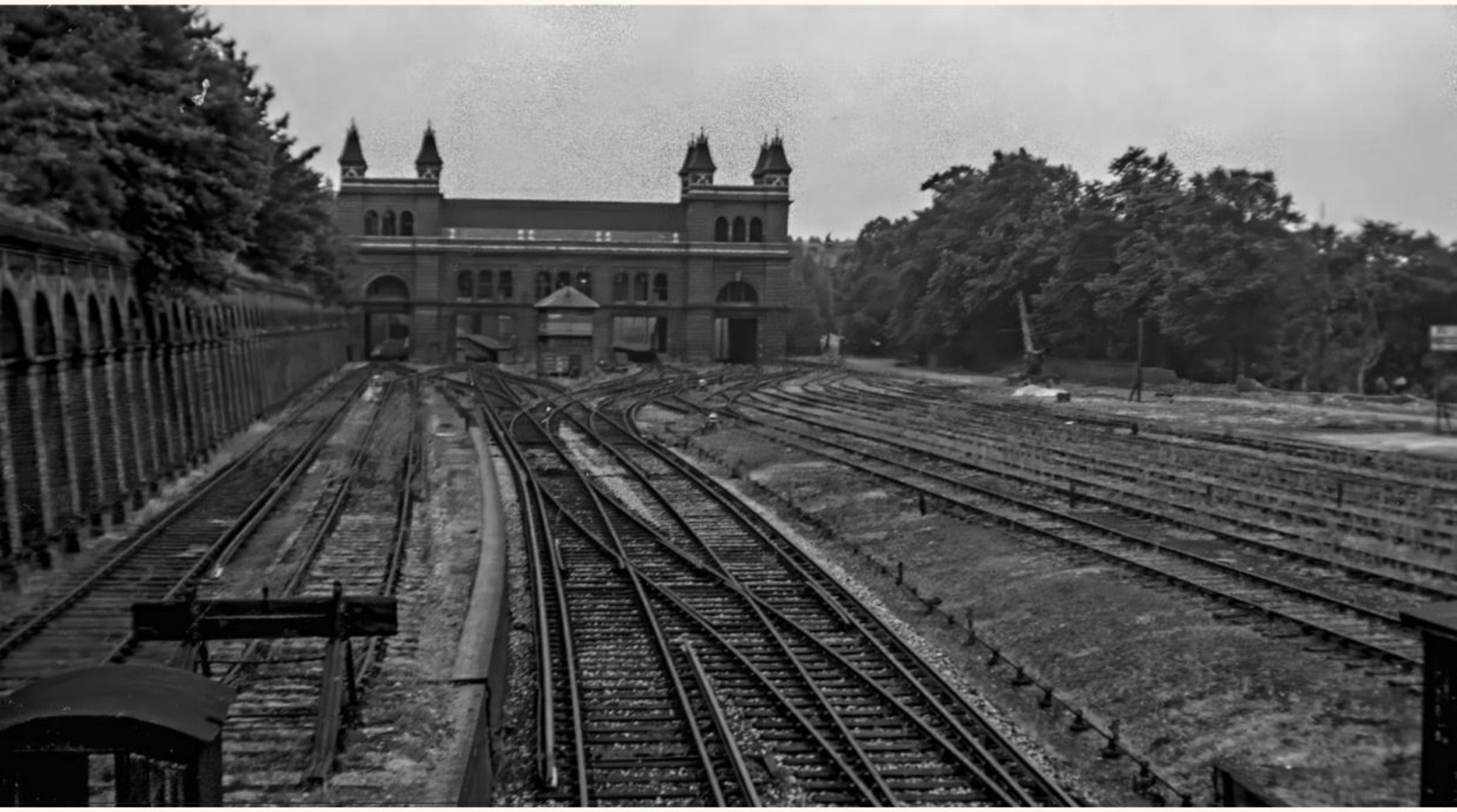
There are many accounts in diaries and letters of impressions of the Exhibition, including, for example, by the prolific Joseph Romilly, Fellow of Trinity College and Registrary [*sic*] of Cambridge University, who in June had gone by rail to Bishopsgate, then stayed with friends in Hammersmith, travelling to Pimlico Pier by steamer. He spent two whole days in the Palace, admiring particularly the mechanical demonstrations but also noting that "…the people behaved very quietly" and that alcohol was forbidden. He also liked the refreshments and the washing facilities. As Romilly read *The Times,* his remarks countered the expectation, cultivated by the newspaper, that the event would be dangerously disorderly. Only three years earlier much of Continental Europe had been torn by revolution and there was a certain contentment that an event on this scale in Great Britain could proceed without disorder. Romilly would have returned to his College with enthusiastic reports, thus encouraging other visitors.

Exiled to Sydenham Hill

The Exhibition closed on 11th October 1851 and with the exhibits removed, consideration was given to its future (strangely not arranged beforehand). There were calls for it to remain as it was, to be used for public purposes as a 'winter garden' with health-enhancing results, but this was forbidden by the terms of the original consent for use of the Park

Early in 1852 a consortium associated with the London, Brighton & South Coast Railway (LBSCR) acquired the structure, whilst a director of the company sold his large estate, Penge Place on Sydenham Hill, to accommodate it, perhaps rather improperly in modern terms. The purposes of this new venture were, naturally, high-minded, but in the event what was created more prefigured Disneyland. The Palace was to be the centrepiece of a large and varied leisure attraction, including sports grounds, fountains, refreshment pavilions, statuary, bandstands and gardens. Most striking perhaps were large, if fanciful, representations of dinosaurs, still there today grazing improbably amongst the trees. Inside, the Palace would include artworks and sculpture as well as huge themed recreations representing the world's different cultures. There was also a vast concert organ and seating for 4,000 guests. It comes as little surprise, though, to find that commentators with the most refined sensibilities found the whole enterprise unspeakably vulgar. Thus John Ruskin: "…we suppose ourselves to have invented a new form of architecture, when we have magnified a conservatory".

The LBSCR understood that for the venture to succeed, as with its forebear, it had to attract huge crowds. Railways were as essential to the second Palace as they had been to the first, but more obviously as locomotives could be heard from the Park. The LBSCR set out to serve 'its' Palace with the authorisation in July 1853 of a short sharply-curved branch diverging from its Croydon and Brighton main line south of Sydenham station, approaching the site from the south. The new, temporary, terminus was down the hill from the Palace:



Looking towards the High Level terminus after closure: the ornate station building stands out. It was demolished in 1961. (Transport Library/Dr. T. Gough)

it opened to traffic on 10th June 1854, the day of the Royal inauguration.

To handle the expected crowds travelling directly from central London and beyond, a line from Wandsworth to Crystal Palace, worked from the start by the LBSCR, opened on 1st December 1856, followed on 1st October 1857 by a southerly line towards Norwood Junction, forming a 'V'-shaped station. In the up direction the line passed through a tunnel below the Palace grounds. The station itself was expansively laid out with an impressive frontage building, equipped to handle the expected crowds. There was a covered way leading up the hill to the Palace, its ambiance suitably enhanced by tasteful nude statuary in niches along the way. The LBSCR services normally worked to and from Victoria and London Bridge.

The LBSCR's penurious South London rival, the London, Chatham & Dover Railway (LCDR), was associated with the promotion of the Crystal Palace & South London Junction Railway, authorised on 17th July 1862. Construction was troublesome, with two tunnels and heavy earthworks, and the line wasn't completed until 1st August 1865, by when the popular appeal of the Palace and its park was already waning as other novelties appeared to take their place. Three intermediate stations would be opened along the branch, in the hope of attracting regular traffic from the well-to-do residents. The terminus, later termed 'High Level', was on an heroic scale, with a grandiloquent frontage building and four terminal tracks beneath an overall roof. Its location, below ground level within yards of the Palace, was very convenient. An imposing subterranean passage, still there today, led first class passengers (only) straight into the building. As had been the case with the Great Exhibition, combined travel and admission tickets were available. LCDR trains at first worked to and from Victoria and Holborn Viaduct, more recently mainly the latter.

Early in the last century railway traffic was threatened for the first time with the introduction on 28th March 1906 of electric trams of the South Metropolitan company, up the 1 in 9 Anerley Hill to the edge of the Park, near where the present bus station stands.

Both lines to the Palace were electrified, the LBSCR adopting 6,700V ac overhead line traction, completed in May 1911. Standardisation of technology by the Southern Railway led to the replacement of the overhead system by the third rail in 1929. The ex-LCDR High Level branch was also included in the Southern's suburban electrification plans, using the standard third rail system. Electric trains began operating on 12th July 1925, every twenty minutes, and delivered a modest increase in traffic.

On great occasions the Palace and grounds could still attract large crowds, for instance for a 'Festival of Empire' coinciding with the Coronation of King George V in 1911, and there were sporting events, such as the annual Association Football Cup Finals until 1914. The Imperial War Museum was housed in the Palace for four years and crowds still turned out on Bank Holidays and for brass band concerts. The firework displays ('Brock's Benefits') on Thursday evenings were popular. All this was, of course, far removed from the high-minded purpose of the Exhibition. The increasingly shabby buildings were alien to inter-war taste and the destruction of the Palace by fire on 30th November 1936 was, if anything, a merciful release. The Southern Railway profited from disaster by carrying crowds of ghoulish spectators and running a special late service for those remaining after the fire died down.

The High Level branch was closed in both world wars, to release staff for war purposes. It is questionable if it ever

produced a satisfactory return on outlay and even in the 1920s a survey showed only 653 daily arrivals at the terminus, on 53 trains, meaning an average of twelve on each. For regular use, as opposed to revellers, traffic growth had been limited by the stretches of open ground to the west of the line, with a golf course, a park and a cemetery preventing the spread of popular housing which engendered residential traffic elsewhere. There were also other stations, as well as trams, within easy walking distance. When closure came, from 20th September 1954, it was not unexpected. Extra buses put on in compensation were soon withdrawn. By strange coincidence the branch to North London's Alexandra Palace also closed in July 1954.

The Palace grounds are now a recreation and sporting centre, though less extensive than they were before the Trustees sold off land for housing long ago. The Low Level station, fully restored in recent years, is a local transport hub with a bus station nearby. Since 2010 the station has been served by London Overground trains running through the Thames Tunnel from Canary Wharf and North London.

In retrospect

We have seen how close was the synergy between industry and transport, on one hand, and the Exhibition and the two Palaces, on the other. The allure of the Hyde Park event revealed to the many who had never ridden on a train the potential of rail travel for all purposes. From stations up and down the land those whose horizons had previously been limited to the local market town found that they could now travel further, for pleasure or for work, largely without trouble. The Exhibition was a stimulus which, coming at that particular time, offered new opportunities for many and permanently altered lifestyles. Most importantly people of all classes, and from far away, mingled without rancour and found a sense of common interests.

The revival of the Palace at Sydenham was quite different, its ostensible cultural objectives soon replaced by popular entertainment, which ultimately failed.

If the Exhibition helped the growth in mobility and social cohesion, what about its primary objectives, improved technical education and innovative industry? The Victorians believed that it drove progress in an era of optimism, recalling the prescient railway metaphor of Alfred Tennyson (Poet Laureate in 1851 and a visitor to Hyde Park), who had ridden on the Liverpool & Manchester Railway in 1830, even if he misunderstood the technology:

"Not in vain the distance beacons.
Forward, forward let us range,
Let the great world spin for ever down
the ringing grooves of change."

But the record would be moot. Within a couple of decades Great Britain began its slow decline relative to its chief competitors, the United States and (from 1870) Germany. The nation had dominated the steam age. In the electric age it slipped behind. Like the Palace the structures remained but the spirit was fading.

But this shouldn't dim the reputation of the Palace, nor of its makers and organisers. It was totally without precedent, decades ahead of its time: it was, a commentator said, 'the Advent of Modernity'. The design, resourcing and construction were epoch-making in their accomplishment. There is something heroic about that first ground-breaking project which revealed in just a few months, and it seems almost by chance, the capability of industry and of construction techniques we now take for granted. Above all the Exhibition was a phenomenon, to be remembered for a lifetime.

A note on sources

Amongst a myriad of books about the Exhibition two were especially helpful:

Jeffrey A. Auerbach, *The Great Exhibition of 1851: a Nation on Display* (1999), a comprehensive account, setting the Exhibition in its broader historical and cultural context. It is also one of few books discussing the Sydenham Palace in any detail.

Michael Leapman, *The World for a Shilling* (2001) is a lively account of the Exhibition, giving a descriptive account as visitors experienced it.

On railways to the Sydenham site three books are useful:

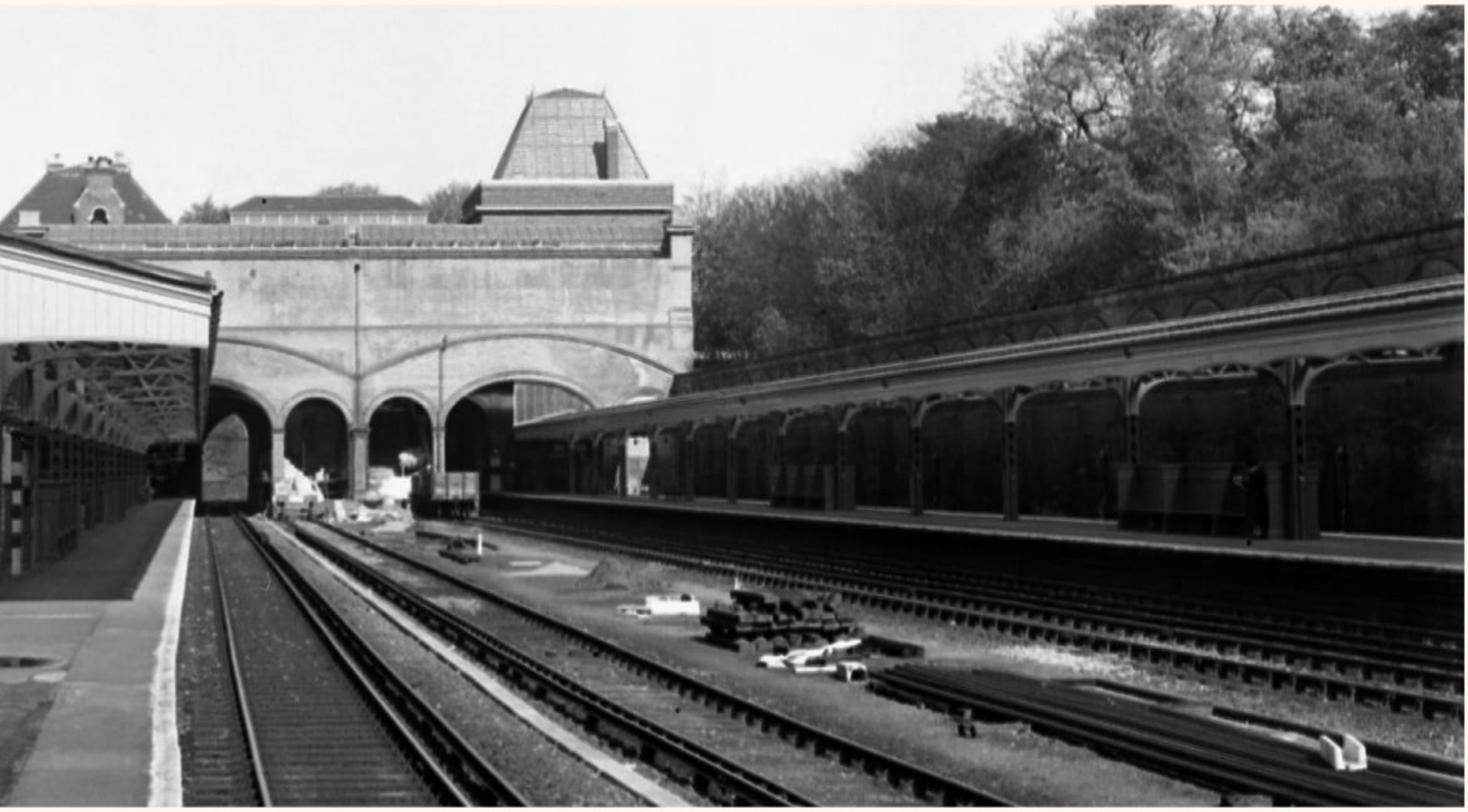
Volume 3 of the *Regional History of the Railways of Great Britain, Greater London* (H. P. White, second edition 1971), is still the canonical survey of London's railways.

Alan A. Jackson, *London's Local Railways,* second edition (1999), explains the development of the Sydenham railways, with details of train services and traffic.

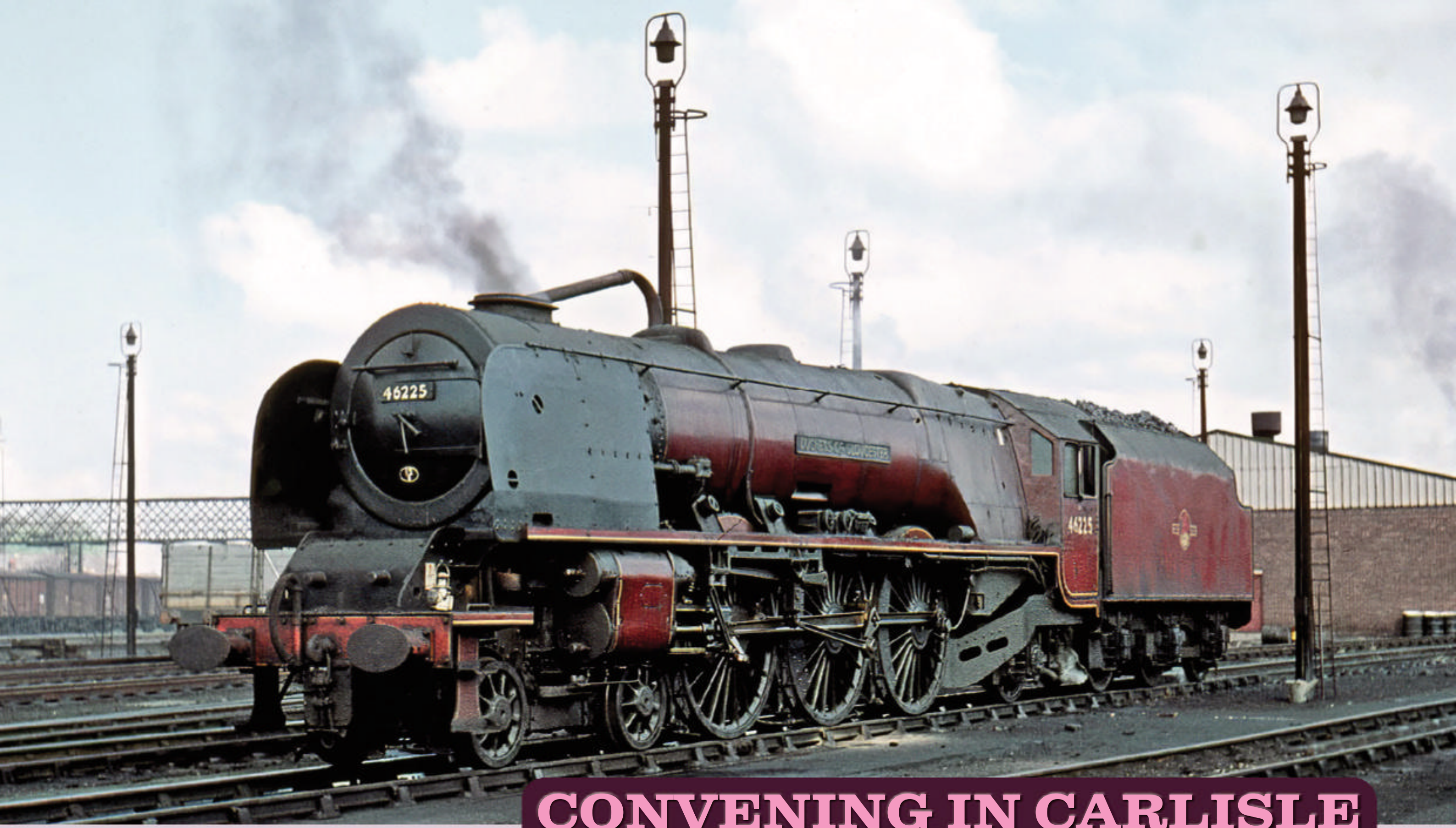
A detailed account of the 'High Level' branch, with many maps and illustrations, is to be found in John Gale, *The Crystal Palace High Level Railway* (2011).

Roger Dixon and Stefan Muthesius, *Victorian Architecture* (1978), sets the Palace into its historical perspective, alongside other contemporary buildings.

Thanks to Tim Figures for advice on the text.



The main portion of the present Crystal Palace station seen in 1954, with the elaborate main building in the distance. There was formerly an overall roof, removed in 1906 as a precautionary measure following the collapse of the similar roof at Charing Cross. A replacement has now been installed. There was a covered footway from the main building leading up to the Palace. (Lens of Sutton/D. Callum)

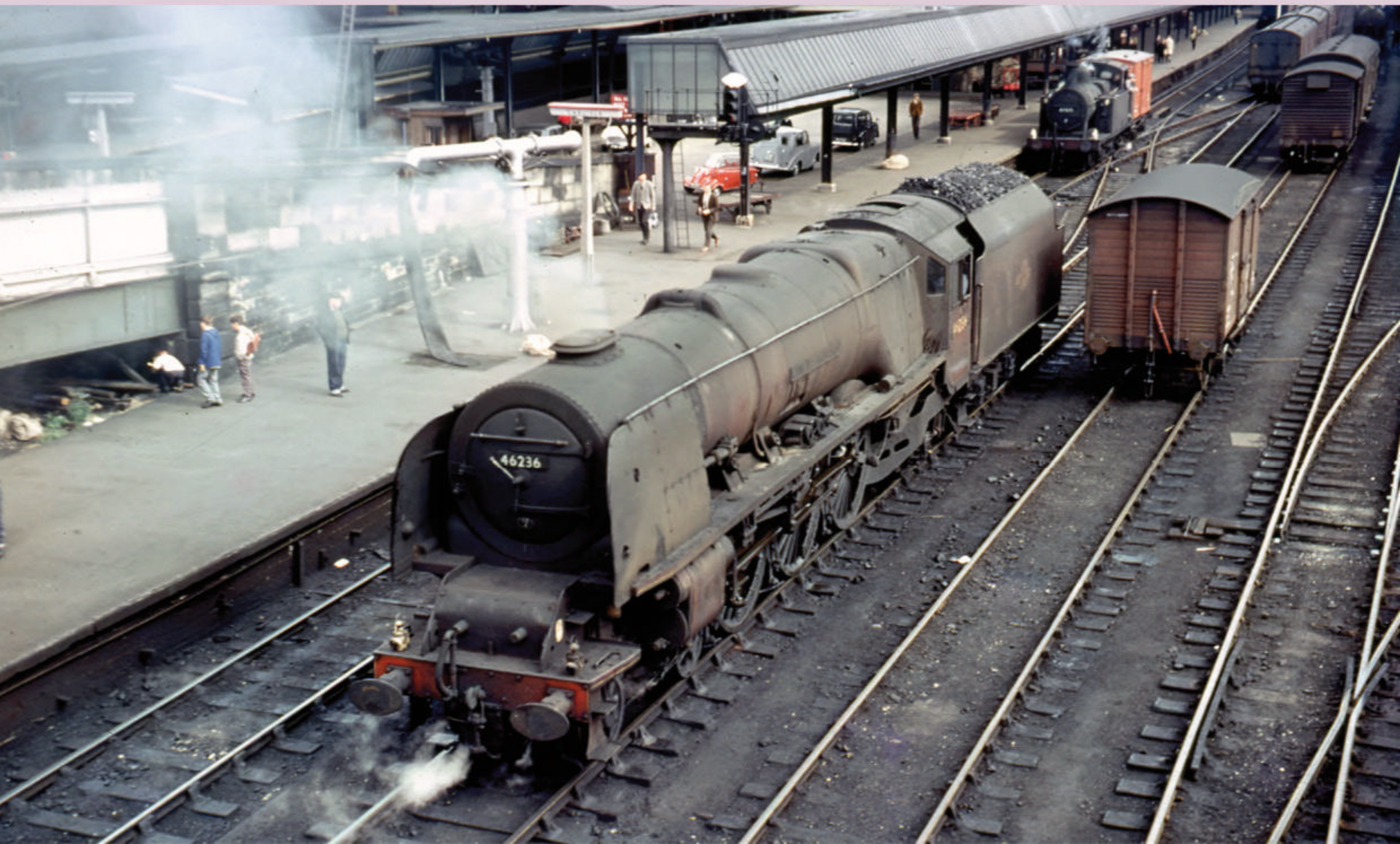


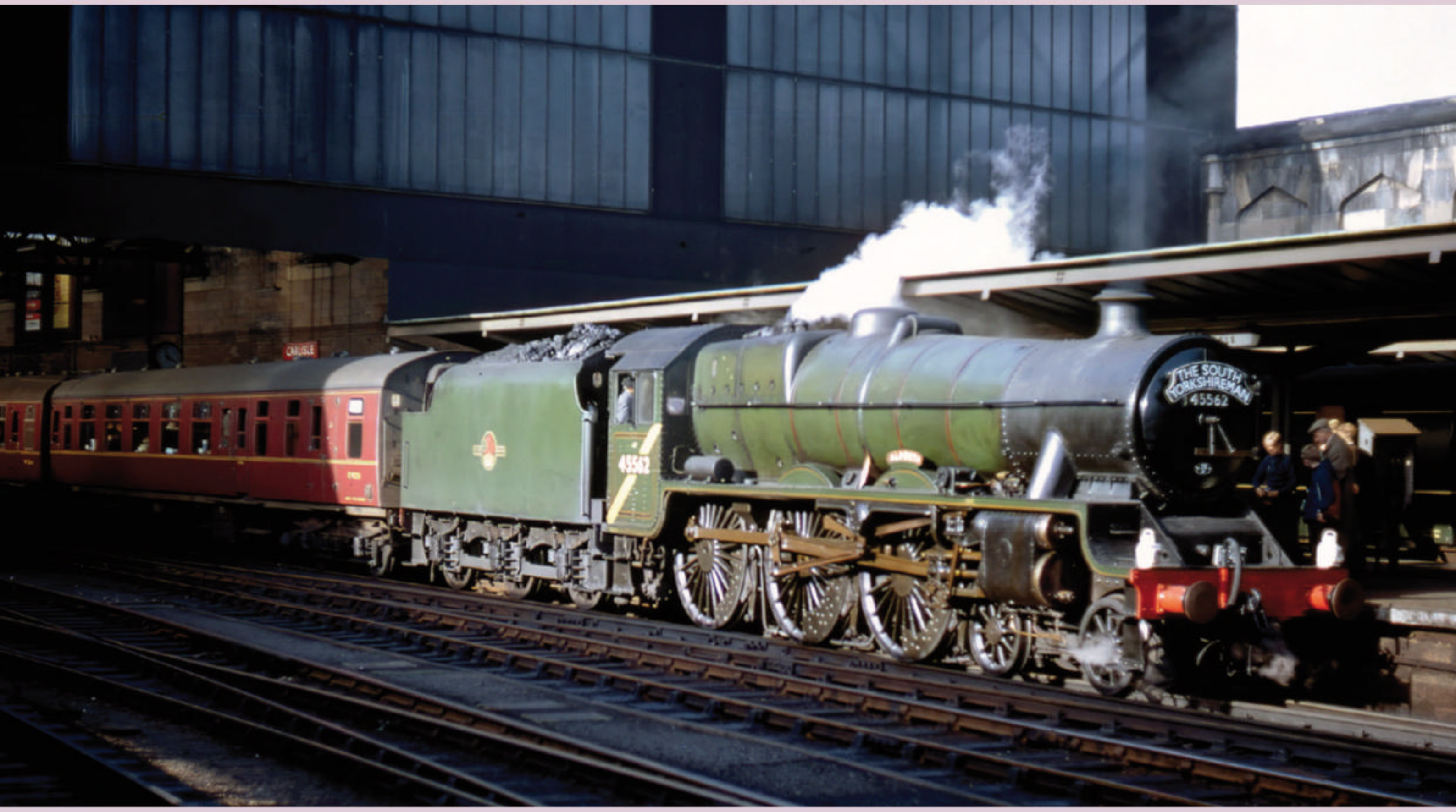
CONVENING IN CARLISLE

Carlisle as a railway centre has long been a 'melting pot' of Anglo-Scottish main lines, a cross-country route from Newcastle and lines around the Cumbrian coast. The variety of motive power to be seen was hard to resist by photographers and the popularity of the routes for special trains brought frequent 'outsiders' to the scene to add to the attractions. This assortment is from the **SIMON LATHLANE** Collection. Another selection will follow later in the year.

ABOVE: **This sort of scene would be towards the top of your wish list if photographing in Carlisle during the steam era – one of the LMS 'Princess Coronation' Pacifics in their final British Railways red livery. No.46225 *Duchess of Gloucester* was a resident of Carlisle Upperby depot and it was taking water there in March 1964. Despite the writing being on the wall for the class by then, No.46225 still looks well cared-for – but it would be withdrawn six months later.**

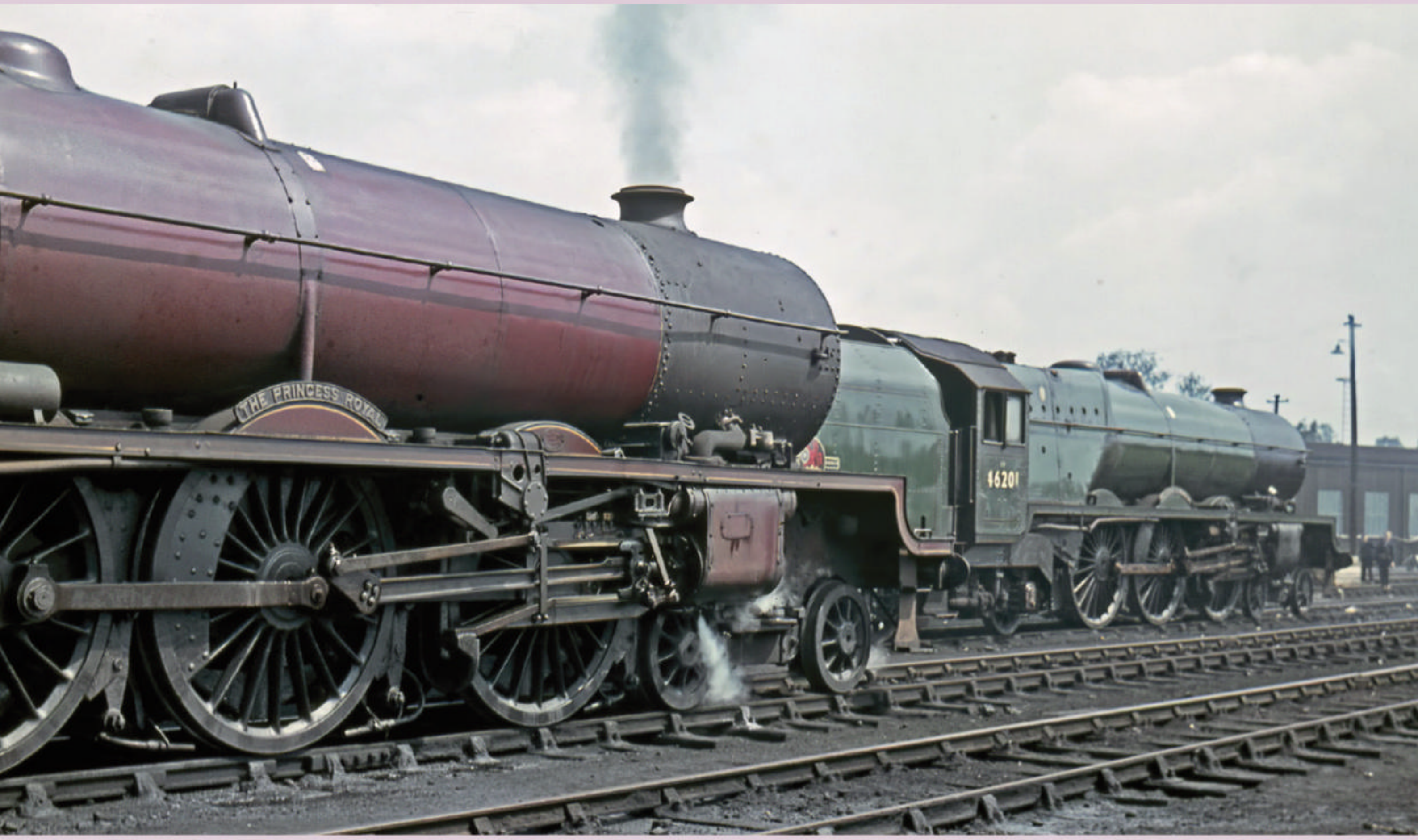
BELOW: **The year before, No.46236 *City of Bradford* was in a much more neglected state, with a long-endured coating of dust and ash doing its utmost to obscure that fine red paintwork. Nevertheless on 13th August 1963 it was on express duty, fully coaled, at Carlisle Citadel station waiting to take over a northbound express. Spotters are having a good day: a station pilot 'Jinty' 0-6-0T is shunting a van through the platform and some classic cars of the day have come down the cab road from the Victoria viaduct.**





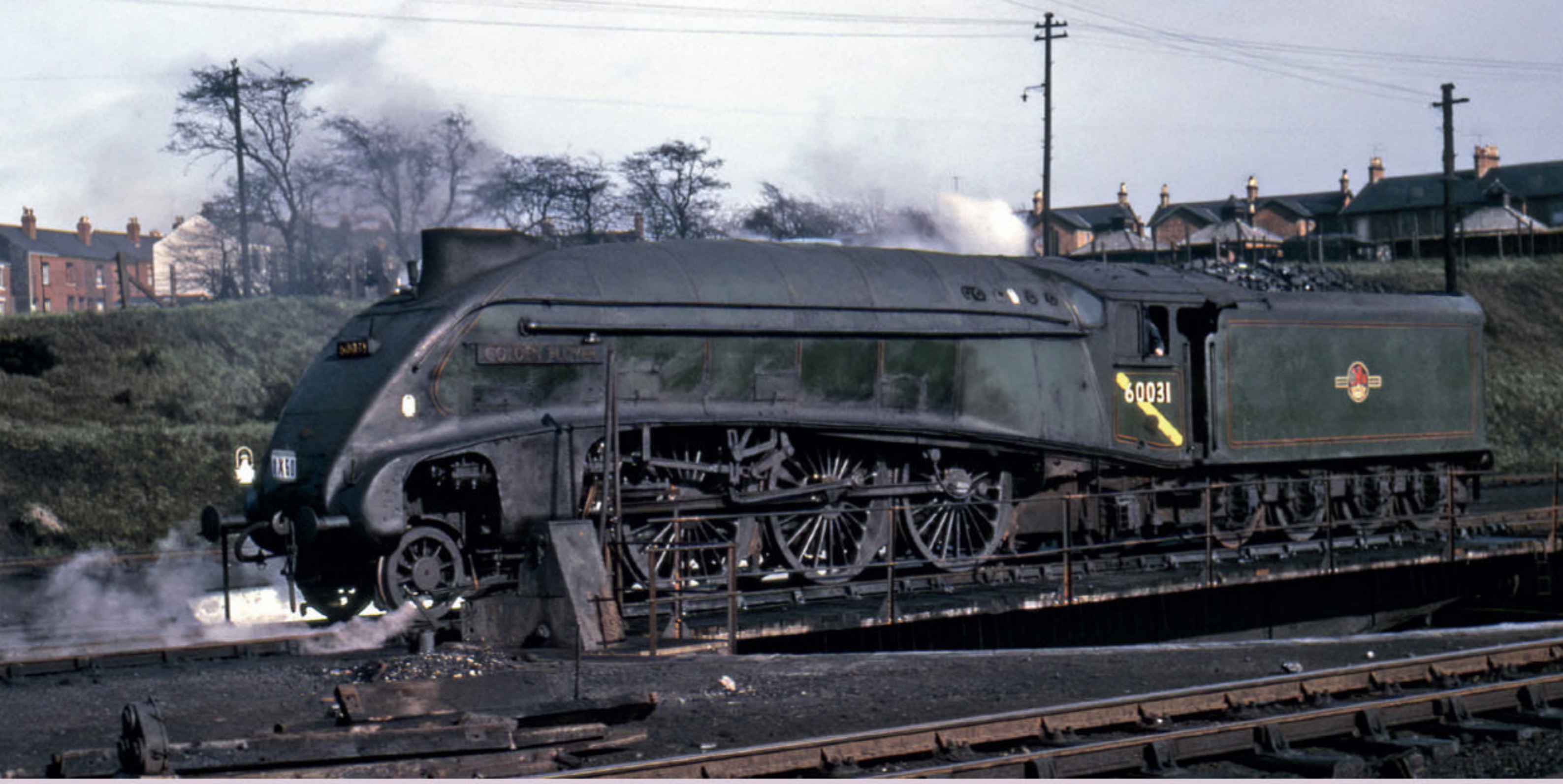
ABOVE: **The West Coast Main Line and Settle–Carlisle route were magnets for enthusiasts' railtours and here on such a duty is one of Leeds Holbeck shed's last celebrity LMS 'Jubilee' 4-6-0s No.45562 *Alberta* on 7th October 1967. The 'South Yorkshireman' special of the Jubilee Railway Society had arrived from Bradford and Leeds via Preston and Shap; now it is ready to return via Ais Gill and Settle to Leeds.**

BELOW: **On 2nd and 3rd June 1962 the Railway Correspondence & Travel Society and Stephenson Locomotive Society jointly organised the marathon 'Aberdeen Flyer' railtour, out from King's Cross to Aberdeen via the East Coast Main Line, returning via Carlisle and the West Coast Main Line to Euston. The Aberdeen–Euston haul was made behind the two pioneer 'Princess Royal' Pacifics, Nos. 46200 *The Princess Royal* and 46201 *Princess Elizabeth*. Both are seen here at Carlisle Kingmoor shed with No.46200 ready to take over from its sister locomotive for the last leg of the itinerary to Euston.**



64888
46248

L N E R
4472



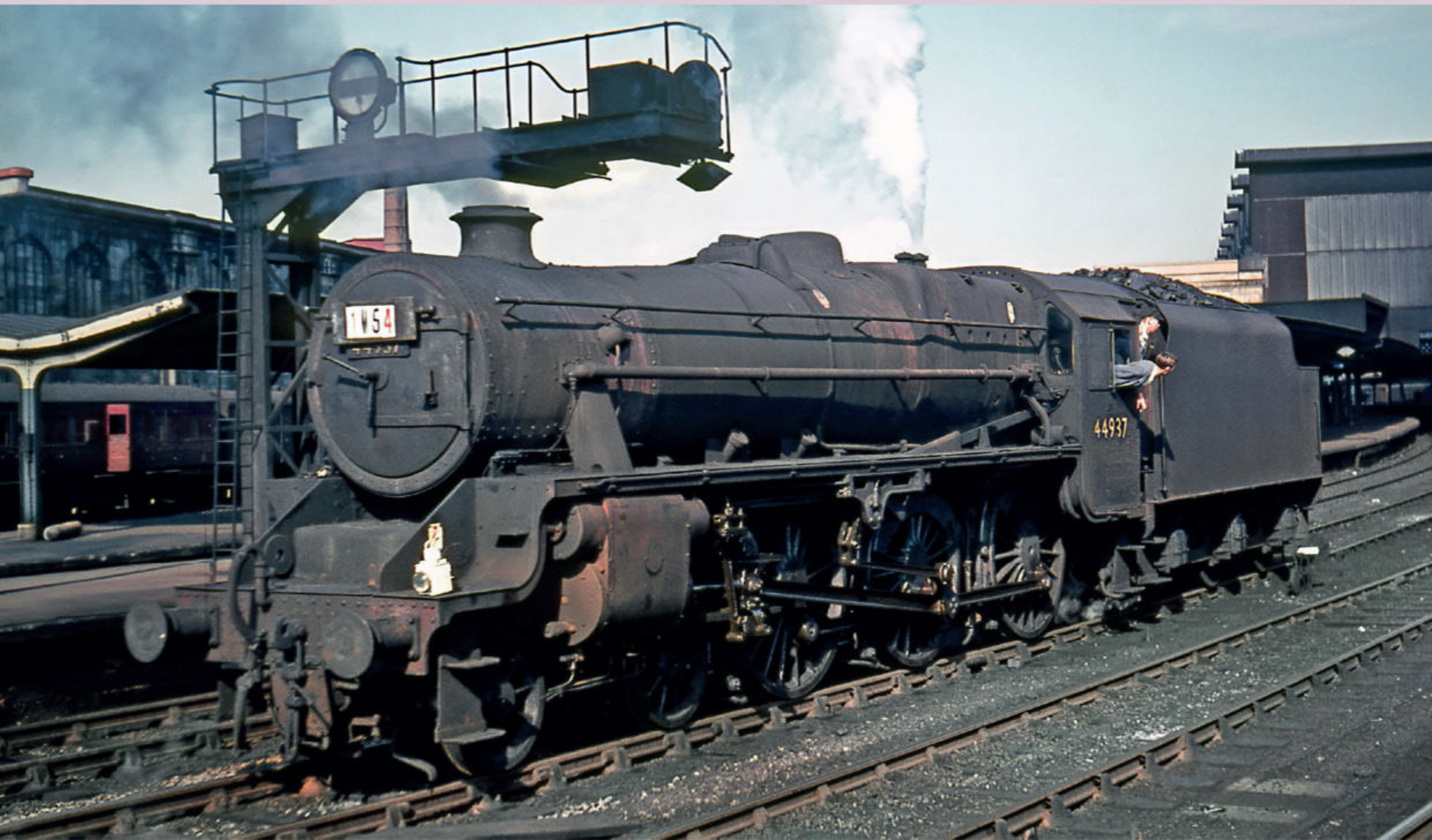
OPPOSITE, TOP: **At the north end of the station on 20th May 1961 No.46248 *City of Leeds* is ready to go with a Glasgow express. In the bay platform is LNER J39 0-6-0 No.64888, a locally based engine at the former North British Railway Carlisle Canal shed, a sign of the NBR's presence in the city with the Waverley Route to Edinburgh and the branch out to the coast at Silloth.**

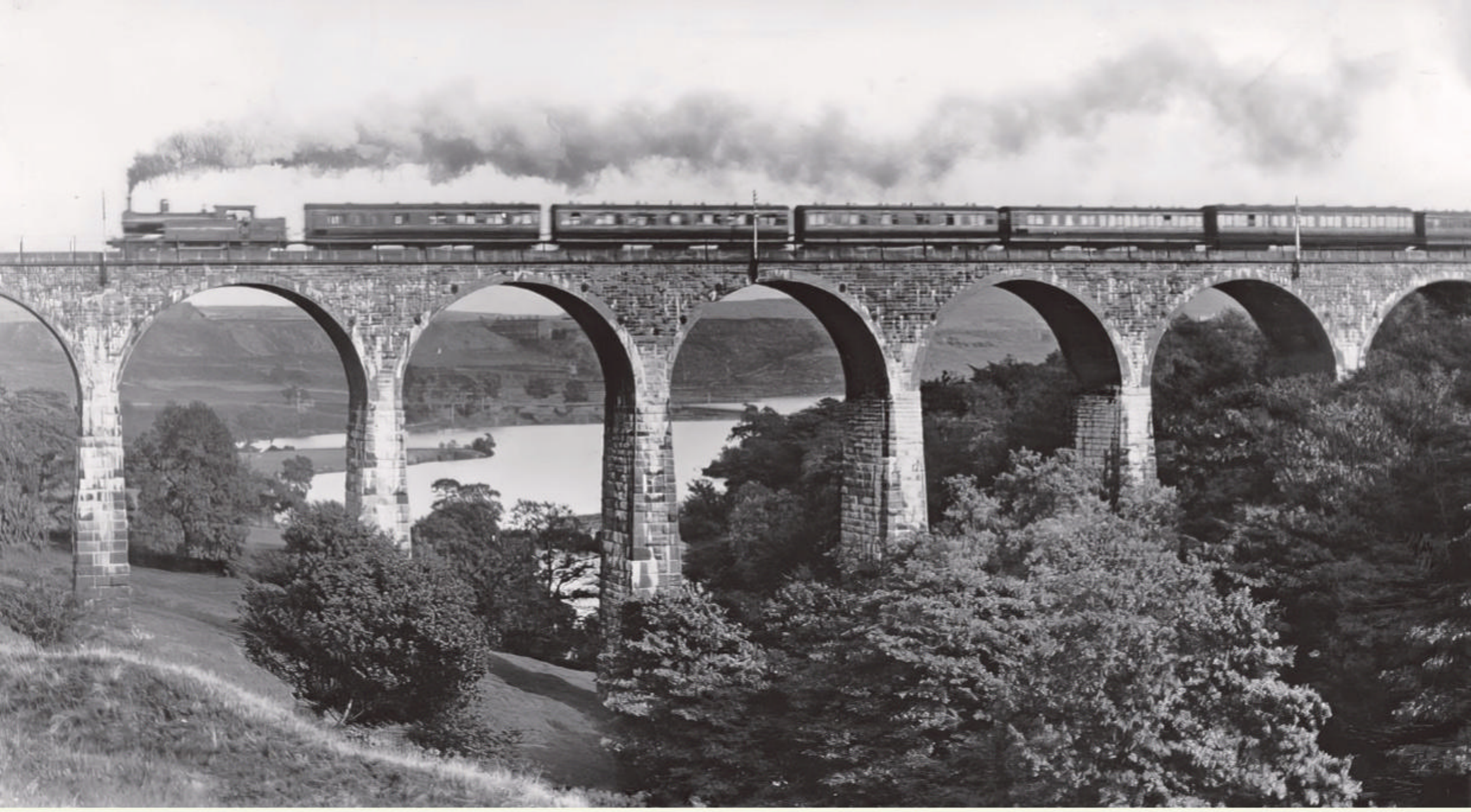
OPPOSITE, MIDDLE: **With steam gushing from stuck open right-hand cylinder drain cocks, BR 'Britannia' 4-6-2 No.70054 *Dornoch Firth* heads out of Carlisle and crosses the River Eden at Etterby with the down 'Thames-Clyde Express' via the Settle & Carlisle and Glasgow & South Western routes.**

OPPOSITE, BOTTOM: **Railwaymen confer as the preserved LNER A3 4-6-2 No.4472 *Flying Scotsman* is turned by means of the vacuum motor at Kingmoor on 4th September 1965. It had arrived from Leeds via Skipton, Clapham, Ingleton and Low Gill, and looks to have had a grim journey of it. Not as bad as the BR engines, though...**

ABOVE: **LNER Pacifics were no strangers to Carlisle, mainly in the shape of A3s working on the Carlisle–Edinburgh 'Waverley Route'. Appearances by A4s were exceptional, though mainly on diverted trains or on booked excursions. This visit by No.60031 *Golden Plover* was one of the latter and here it is on the turntable at Kingmoor after bringing in a special on 29th October 1965. It was one of only two of the class (No.60027 being the other) to be given the yellow cab-side stripe to prohibit use under the electrified wires south of Crewe – if that were even likely! It was withdrawn shortly afterwards.**

BELOW: **No review of steam at Carlisle would be complete without one of the ubiquitous LMS Class 5 4-6-0s. On 27th August 1965 it is No.44937 which has been photographed, with the driver leaning well out to catch the signal while backing through the station. Based at Carlisle Upperby shed, it would be taking over a summer Saturday Newcastle–Blackpool train.**





A Lancashire & Yorkshire Railway 2-4-2T crossing Entwistle Viaduct, with the Wayoh Reservoir visible beyond the arches. (John Alsop Collection)

NORTHERN VIADUCTS I

> "There is little doubt that viaducts are the most impressive and monumental of all railway structures as they sweep across rivers and valleys… They are now considered to be an intrinsic part of the landscape." Gordon Biddle, *Britain's Historic Railway Buildings*, 2003.

The words 'bridge' and 'viaduct' are regarded by Jack Simmons as interchangeable in today's railway parlance. Thus we have examples such as the Tay Bridge and the Royal Border Bridge, both multi-arched viaducts.

There are viaducts in rural areas of Britain spanning rivers and valleys; those found along the Midland Railway's Settle and Carlisle line furnish fine examples. Many viaducts are located in cities and towns. A viaduct in a small town such as Todmorden dominates the town's layout, dictates the road layout and even separates districts which once were contiguous.

The openings of viaducts were reported in local and national press. So too were accidents involving injuries and fatalities. The commonest reason for a viaduct to collapse in the early history of railways was the dismantling of timber centring before the mortar between stone and bricks had dried and set.

The purpose of this photo-study is to illustrate six northern viaducts. The structures became the subject of newspaper reports, not only describing the work being done, month by month, but also noting small dramas occasioned by accidents, bad weather, human error and the nightmare incidence of viaduct collapse.

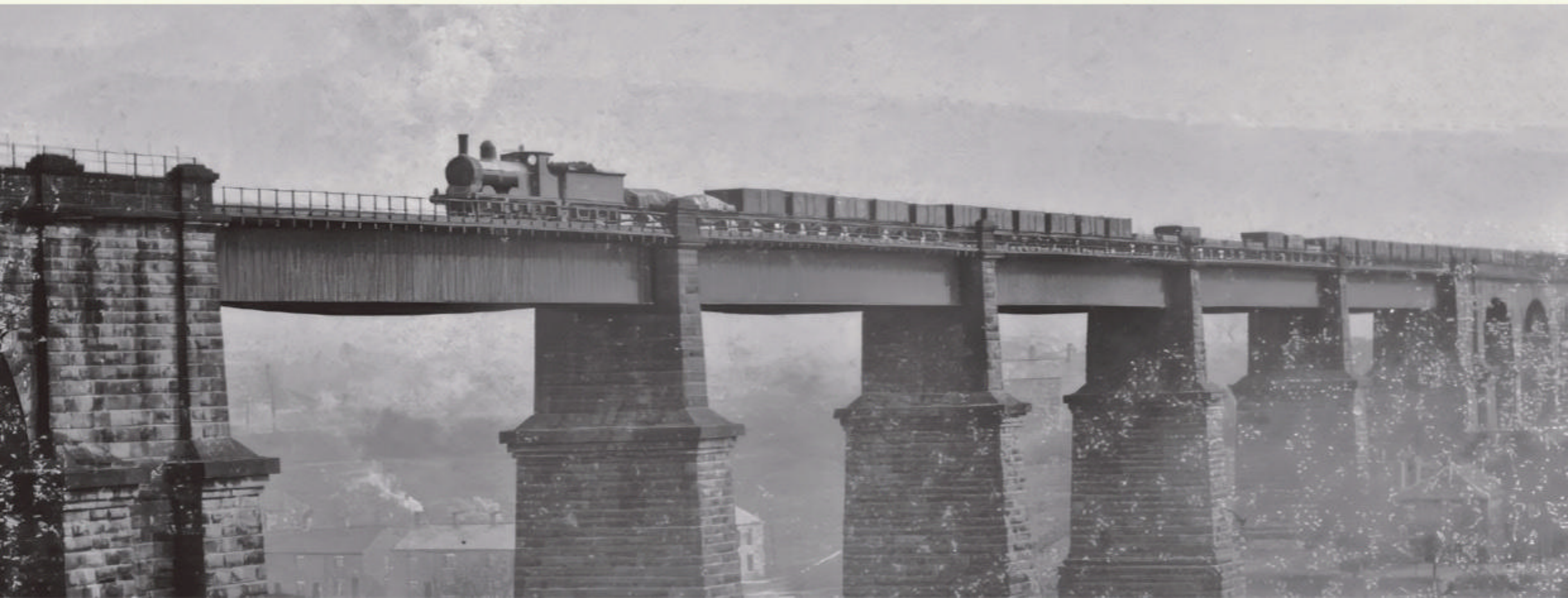
Entwistle Viaduct

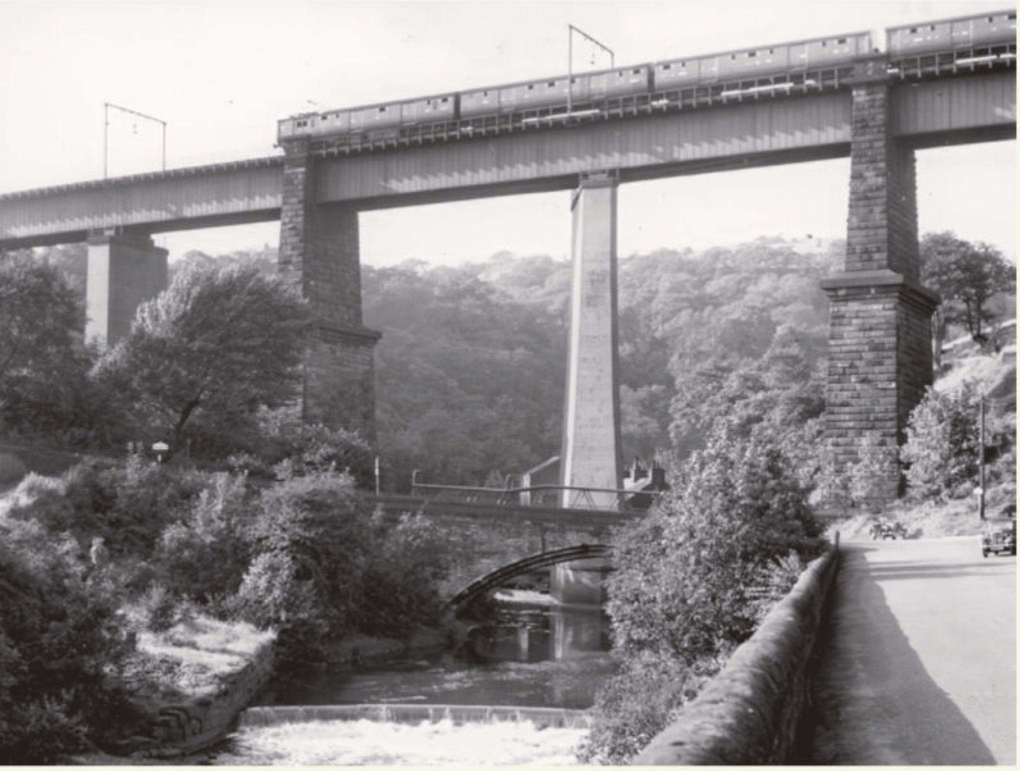
We begin with the Entwistle Viaduct in Lancashire, located on the Bolton, Blackburn, Clitheroe & West Yorkshire Railway (officially known as the Blackburn Railway by an Act of 24th July 1851) between Bolton and Darwen. The viaduct became Lancashire & Yorkshire Railway property on 1859.

Entwistle Viaduct appeared in the *Preston Chronicle*, 3rd June 1848, in connection with the opening of the Blackburn Railway on 12th June 1848. Several Bolton newspaper reporters traversed the line on foot, covering a distance of six miles. Starting from Trinity Street station, Bolton, they were accompanied by a land agent and several gentlemen.

"Passing through Chapel Town, the habitat of Turton fair, in September, we arrive at Bradshaw brook viaduct. Its Entwistle reservoir, covering an area of 136 acres, on the left, crosses a valley, beautifully picturesque, having Turton and the water from which passes through the centre arch; and on the right, an interesting prospect. The viaduct

A mixed freight train crossing the Dinting Vale Viaduct travelling towards Manchester. The locomotive is Great Central Railway Class 9D 0-6-0. The coal wagons behind the locomotive are filled with the fuel. (John Alsop Collection)





The Dinting Vale Viaduct photographed on 2nd September 1954 being crossed by one of the new electric multiple units introduced that year between Manchester, Glossop and Hadfield as part of the Woodhead electrification. The viaduct is seen with the additional brick strengthening piers added in 1919. (Pendragon Collection)

N THE NEWS

BY JEFFREY WELLS

consists of nine semi-circular arches of 50 feet span each; the greatest height from the brook being 114 feet; the lowest end at the north being 6 feet, and at the south 40 feet. The piers are 6 feet 9 inches in thickness at the spring of the arches, increasing in thickness downwards by a batter of half an inch to the foot on each side of the foundation. The arches of this viaduct contain upwards of seven millions of bricks, and are unsurpassed in the kingdom. The bridge is light in appearance, but substantial in reality.”

The report requires two explanations. The name Bradshaw Brook viaduct is rarely used today. “An interesting prospect” fails to mention that Entwistle reservoir dam lies just to the west of the viaduct, which actually crosses the man-made channel of the River Bradshaw. On the eastern side is Wayoh Reservoir, a second reservoir supplying water to Bolton, overlooked by the village of Edgworth.

Dinting Vale Viaduct

A contract advertisement appeared in the *Liverpool Standard,* 20th September 1842 entitled ‘CONTRACT FOR DINTING VALE VIADUCT’. The complete advertisement read as follows:

“ “Contract No.6 or Dinting Vale Viaduct Contract. To commence at the termination of the Gamesley Contract, in the parish of Glossop, in the field No.226, in the parish of Glossop, to terminate in the field No.209, on the plan, in the same parish, the length of the viaduct being 484 yards.”

The railway company promoting this work was the Sheffield, Ashton-under-Lyne & Manchester Railway (SA&MR), laying down details of its line between Manchester and Sheffield, via the small town of Glossop, and through the Woodhead Tunnel. In constructing this line was the small matter of bridging the incised valley of the River Etherow. This was to be done by constructing a viaduct named in the above contract advert.

Messrs. Buxton & Clarke’s tender of £31,000 was accepted and work began in 1843. The completed structure comprised three sections: seven stone approach arches of 50ft span on the north western (Mottram) side. A middle section embraced five arches made up of Memel (or Baltic) timber, each one 50ft span, and finally four stone arches, 50ft span on the south eastern (Glossop) side.

The original timber and stone structure was replaced with wrought iron box girder in 1860. *The Glossop Record*, 30th June 1861, gave an interesting account of the engineering changes made to the viaduct in 1860. A few extracts are taken from this account.

“Alarming indications of decay began to appear in the woodwork, and about 15 months ago it was wisely considered necessary by the company that more permanent structures should be substituted for the safe transit of life and property over these dizzy heights. (nearly 140 feet)”

Messrs. Fairbairn and Co. of Manchester were consulted. They submitted designs with estimated costs “for sets of wrought iron girders or tubes to be fixed in place of the timber work”. Between 1918 and 1920 additional brick piers were placed between existing piers.

On 22nd September 1855 the *Manchester Courier* reported an accident at Dinting: “A very melancholic accident occurred on Tuesday night at a viaduct near Dinting Station on the Manchester, Sheffield and Lincolnshire Railway, by which three persons were precipitated from a parapet wall upon which they had unconsciously stepped from the carriage, to the ground, a depth [*sic*] “

All three were killed on the spot. It was a dark night, the parapet being mistaken for the platform. An ordinary passenger train had stopped at Dinting station; the excursion train had been stopped at a safe distance from it, alongside the viaduct parapet.

Dinting Viaduct was no stranger woeful incidents: axle breakage on a carriage on a Manchester-bound express –February 1884, obstacle placed on the tracks – April 1884, collision between two goods trains – February 1885, man jumping from a train – 1894.

Saddleworth Viaduct

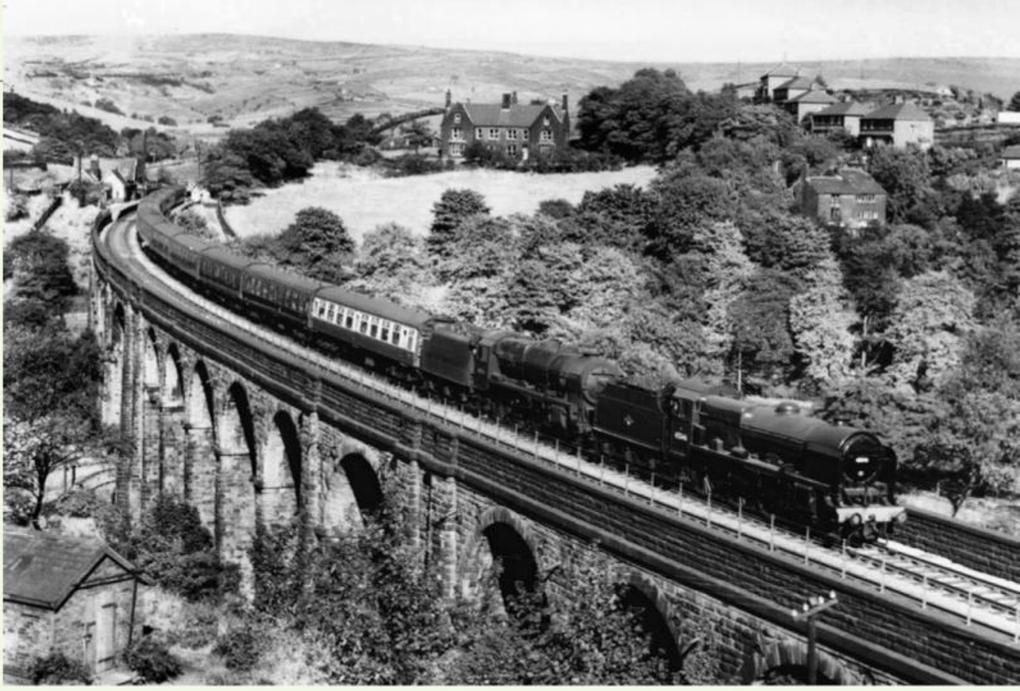
Saddleworth Viaduct remains a prominent feature of the landscape around the village of Uppermill. The Huddersfield & Manchester Railway (H&M) Company was inaugurated by Royal Assent on 9th July 1847. By the time that viaduct had been completed, the H&M had been absorbed by the London & North Western Railway (LNWR). The main contractors for the new line between Huddersfield and Manchester were Messrs. Nowell & Hattersley; the engineers were Alfred Jee and Joseph Locke. Construction was hampered by disagreements and resignations. Progress was also hindered by the collapse of Cocker Hill Tunnel, which brought down nine houses in Stalybridge.

Tunnels presented one source of problem; the construction of viaducts was another. In order to expedite the completion of Saddleworth Viaduct, a ‘goliath’ crane was ordered.

There were four viaducts between Stalybridge and Huddersfield: Stalybridge, Saddleworth, Crimble and Milnsbridge. Saddleworth Viaduct comprised twenty arches spanning the Huddersfield Canal and the River Tame and was completed in the summer of 1849. The entire line was inspected by Captain Wynne of the Board of Trade Railway Inspectorate on 2nd July 1849 and found incomplete works to the extent that he declared the line unfit for public use. On a second inspection six days later Captain Wynne found everything in order, and the line officially opened on 1st August 1849.

As a preliminary trip a party of directors and friends travelled by train from Huddersfield to Manchester, an event which was reported in the *Manchester Examiner and Times,* 18th July 1849.

“On emerging from the Standedge Tunnel, the little village of Digley, in the township of Quick, is reached…” [the line passes through] “the Brownhill cutting – a cutting of 43 feet deep in rock, and from which 60,443 cubic yards of earth and stone have been removed. At the upper end of this cutting, the Saddleworth or Uppermill station is situate, being twelve miles from Huddersfield. The station passed, the line stretches over the Upper Mill valley, first by embankment, and then by viaduct, 320 yards long, the height being 65 feet. The number of arches are twenty, of 30 feet span, and three skew arches, two of them being 35 feet span on the square, one of them being 65 degrees skew, the third



Saddleworth Viaduct in September 1960 with an unrebuilt 'Patriot' 4-6-0 No.45546 *Fleetwood* assisting rebuilt member of the class No.45534 *E. Tootal Broadhurst* on a Newcastle to Liverpool Lime Street express. (Author's Collection)

spanning the canal with an arch 40 feet span on the square, and at an angle of 50 degrees."

Falling from viaducts was not confined to Dinting Viaduct. The *Huddersfield Chronicle,* 30th December 1865, reported the following drama involving a 28-year-old-man who resided in York and who travelled to Saddleworth "intending to spend the Christmas holidays with friends".

"The train was due at Saddleworth at 9.40pm but did not arrive until after midnight. It was a heavy train of 22 carriages, which was propelled by two engines. The night was foggy and the rails were slippery, and parts of the train extended beyond the platform at both ends; the compartment in which the deceased rode being 48 yards beyond the Manchester end of the platform. When the carriage door had come to a standstill, the deceased opened the door, shook hands with a friend, and stepped out on to the parapet wall of the Brownhill Viaduct. The parapet is about 3 feet from the carriage door. A guard named Sparkes saw the deceased standing on the parapet and called out 'Be careful, sir, come off that wall'. While he was speaking the deceased fell backwards over the wall, a distance of 63 feet." The deceased was about to visit Messrs. Hirst of Dobcross. His family was awarded £1,000 compensation by the LNWR Company.

Accrington Viaduct

A visit to the Lancashire town of Accrington is rewarded by access to Accrington Viaduct. The edifice dominates the town centre and has for many years determined the road pattern near it and below it. The line connecting Blackburn with Accrington was already in use when Captain Simmons made his inspection on 15th August 1848 and the line was officially opened two days later. The *Manchester Times,* 18th September 1848, fully reported the occasion.

"The train accompanying the government inspector consisted of an engine and tender and two carriages..." in which a party of bigwigs was carried, namely T. Dugdale, the deputy chairman of the East Lancashire Railway (ELR), the contractors, the resident engineers Perring and Donaldson, Captain Wynne and several company directors. On leaving Blackburn, "the party, preceded by a pilot engine, proceeded to Accrington, the point at which the Burnley length commences. Captain Wynne commenced his inspection of the Accrington viaduct, which commences just beyond the station."

The report continues with a description of the viaduct, which "presents a most imposing appearance, having twenty-one arches of forty feet span, and a height of 80 feet above the brook, which passes under it about the centre. The viaduct is on a curve of forty chains, and is of massive coursed masonry. The arches are of brick, with stone quoins. The first arch of the viaduct is on an oblique angle, and carries the line over the Blackburn and Burnley turnpike road; the remainder is over a portion of the village".

John Marshall, *The Lancashire and Yorkshire Railway* Vol.1, states that during construction of Accrington Viaduct, four piers began to sink and had to be demolished and rebuilt. In 1866 the viaduct once again became unsafe and in July of that year, Sturges Meek, the LYR engineer, reported that £11,215 would be needed to reconstruct it. The veracity of this information has not been substantiated; a search for details in the contemporary press fails to furnish the relevant information.

Radcliffe Viaduct

Construction of the line between Clifton Junction and Bury had been very difficult owing to the uneven terrain. The line crossed the River Irwell twelve times. The *Preston Chronicle,* 26th September 1846, informed readers that "Besides the Clifton Junction Viaduct, there are twelve others crossing rivers, canals, brooks, and vallies [*sic*]; thirty-two bridges of wood, iron, and stone, to carry the railway over roads, and ten where roads pass over the railway."

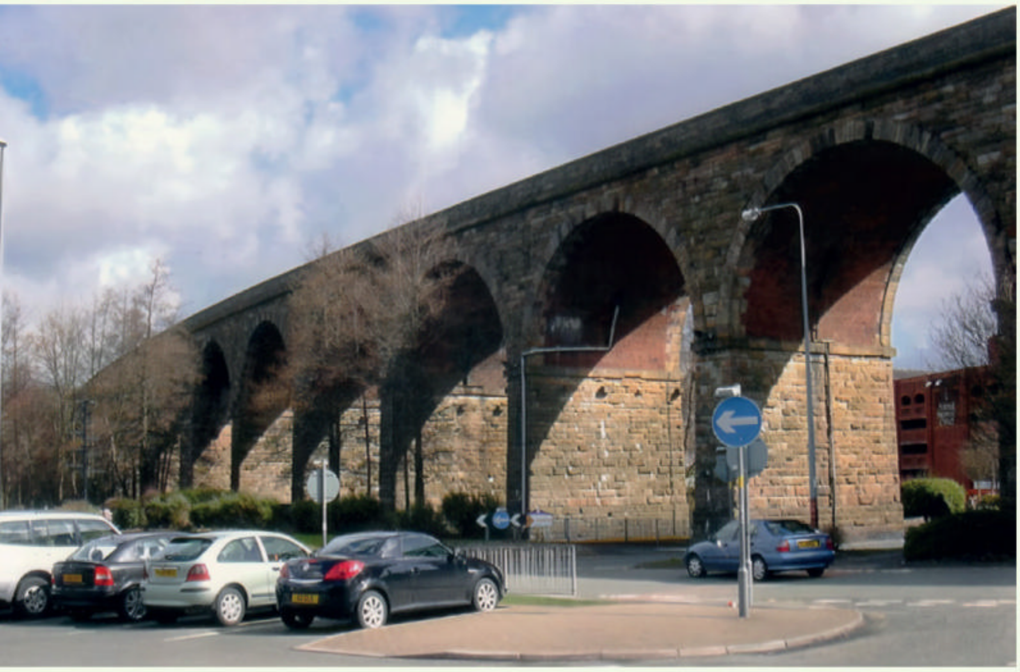
Furthermore, "from Clifton Junction, on the Bolton line to to Stubbins, there is a double line of rails; after that place, at present, only a single line of rails [exists]…"

The valley of the River Irwell provided a convenient route for the railway to follow, despite the numerous crossings. Less than a mile from Radcliffe town centre, a timber viaduct was built consisting of five spans. This was replaced in 1881 with a cast iron and brick structure. Strangely, there are few references to the viaduct in the local and national press in 1880/81. The viaduct earned the name 'Outwood Viaduct' because it was located in an area known as Outwood. The only reference to the new viaduct is the following advert in the *Manchester Courier,* dated 16th July 1881.

"MESSRS. WILLIAM WILSON & SON have received instructions from Messrs. H. Handyside and Company Limited, contractors, to SELL BY AUCTION, on Monday next July 18th 1881, commencing at one o'clock prompt, a large Portion of the TIMBER that has been used in the construction of the viaduct, which is being replaced by ironwork, consisting of pitch pine and Baltic logs, half timber, planks, wood fencing, and sundry timber, etc."

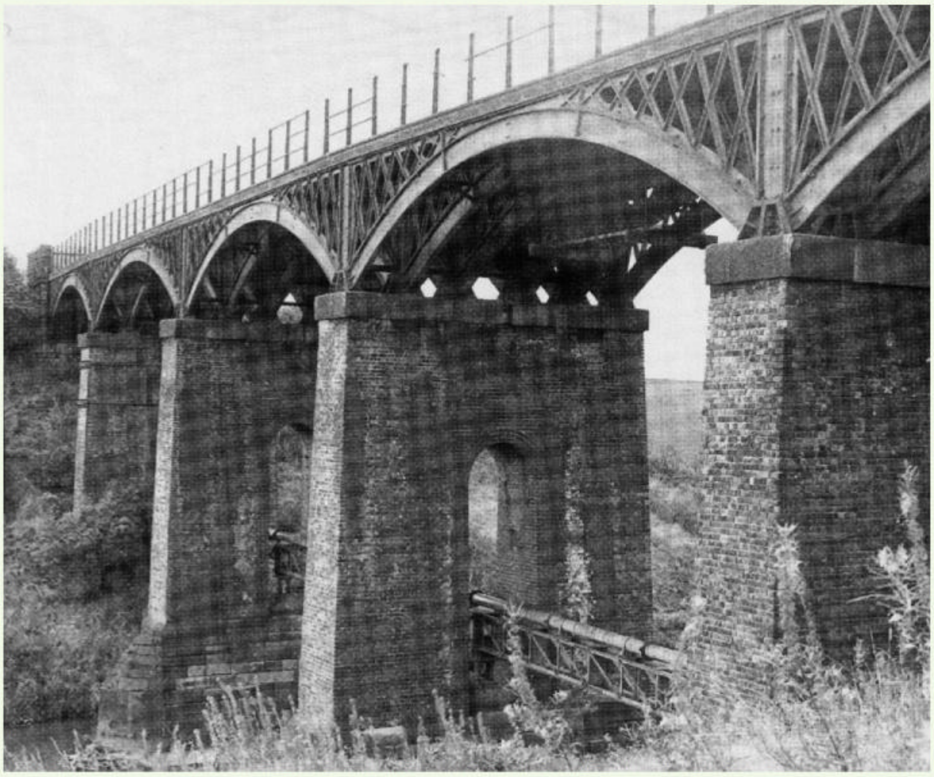
The design of the new viaduct fell to Sturges Meek, the LYR's civil engineer. Gordon

Accrington Viaduct. (Author)



Biddle favours us with a handy description of the viaduct in his book *Britain's Historic Railway Buildings,* from which the following notes are taken. The original wooden viaduct across the River Irwell was built by the East Lancashire Railway in 1846. It was replaced by five 60ft segmental cast iron arches, a very late example of such construction.

They were cast by Andrew Handyside & Co. of Derby, who for many years had supplied ironwork to railways. The spandrels have open latticework and the brick piers have round-headed relieving arches within them. The piers appear to be original, and show traces of earlier pointed relieving arches. The viaduct, 112 yards long and 60 feet high, was restored in 1999 as part of the Outwood Community Parkland reclamation project and will eventually form part of the national cycle network.



Outwood Viaduct, Radcliffe, on the East Lancashire Railway line between Clifton Junction and Bury. (John Alsop Collection)

Whalley Viaduct

Seven and- a half miles east of Blackburn, three and a half miles west of Clitheroe, lies the picturesque valley of the Lancashire Calder in the attractive area locally known as the 'Ribble Valley'. The cutting of the first sod of the Blackburn Railway occurred on 30th December 1846 at Clitheroe, whereupon construction work proceeded slowly.

Whalley Viaduct consisted of 49 semi-circular arches, considered at the time to be the strongest form of arch. 29 arches were of 30 feet span; 20 were 40 feet span. The greatest height from rails to the river amounted to 70 feet. The length of the viaduct measured 679 yards.The piers, arches and spandril faces were built of brick. The arches were set in concrete; the spandril backing in stone. Over seven million bricks were used in the construction and 436,000 cubic feet of stone. More than 10,000 cubic feet of timber were used in piling and centring. The overall cost was expected to be £35,000. The sub-contractors for the brick work were Messrs. T. Hilton and Jacob Nowell and for the stonework Mr. T. Hacking, of Padiham.

The incomplete viaduct became the subject of headline news In October 1849. The *Blackburn Standard,* 10th October reported the 'FALL OF ARCHES AT WHALLEY – THREE LIVES LOST'. The report gave the basic details of the disaster:

"On Saturday afternoon last, at about half-past two o'clock, an alarming and fatal accident occurred at the Great Whalley Viaduct on the Bolton, Blackburn, Clitheroe & West Yorkshire Railway. This viaduct is to be composed of 49 arches (forty-one of which are completed) for the purpose of carrying the line through Whalley on towards Clitheroe.

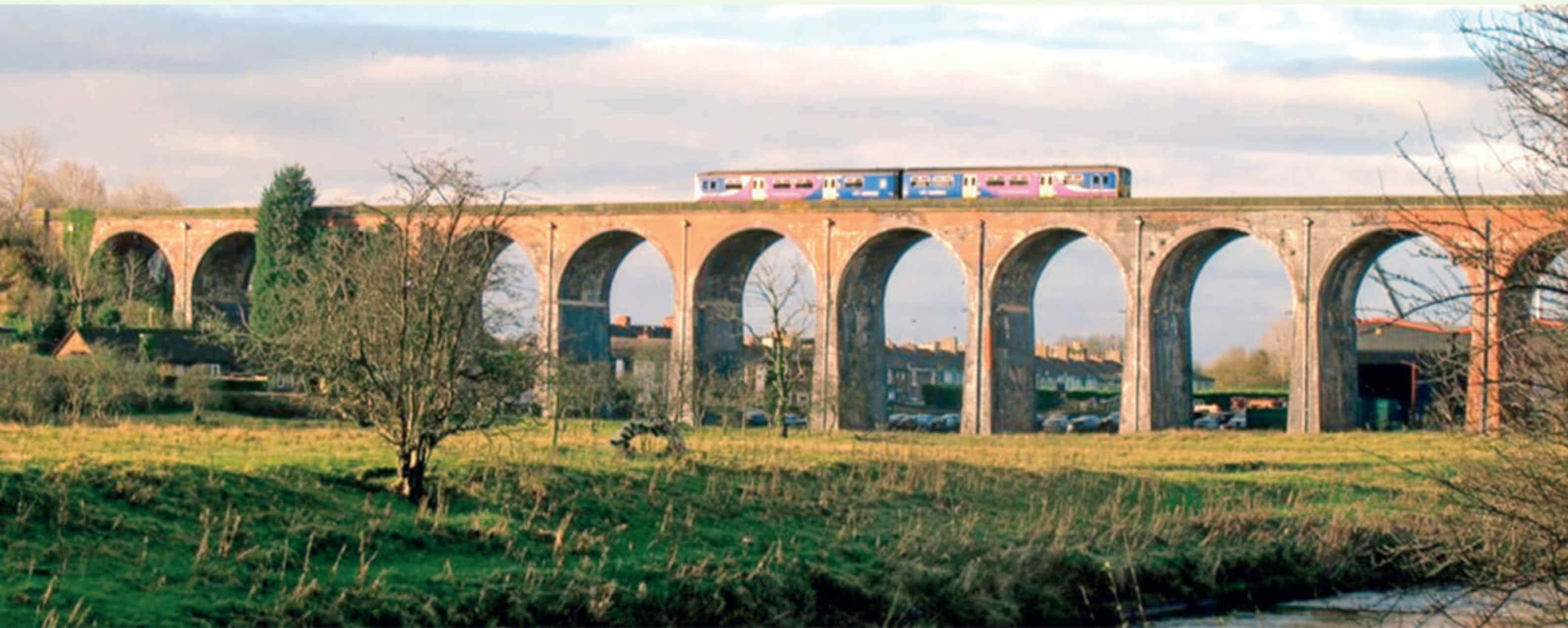
"It appears that on Saturday last, at about the time stated, four men were on the second arch on the Billington side of the river Calder, which the viaduct crosses, when without any previous warning, that, and the third arch from the river, fell with an alarming crash, a height of between sixty and seventy feet, carrying the four men down with them, and burying them in the ruins. When the excitement this occurrence had created had somewhat subsided, means were instantly taken to extricate the unfortunate men, and after considerable exertions three of them were got from the ruins, dreadfully crushed and mangled, and quite dead."

Whalley Viaduct caused alarm again in 1872. At a meeting of the Clithroe Town Council it was alleged that the viaduct was insecure due to the sinking of the ground and the subsequent subsidence of the foundations. In places, the surface of the line of railway had been filled up with material to compensate for the space to which the arches had sunk. The LYR was requested to inspect the railway arches.

Epilogue

Our study of six viaducts in northern England has come to an end. In a discussion about the article with a friend an interesting question arose. How many railway viaducts continue to carry traffic in the UK? The exact number is not known by the author, but it must be in the hundreds, or maybe one thousand-plus. This article has focused on six viaducts in order to give the reader an idea of why they were important items of news. Each viaduct has forged its place in the history of British railways.

Whalley Viaduct across the River Calder, looking north east from Billington. (Author)



THE ORIGINS AND BUILDING

BY PAUL BOWEN

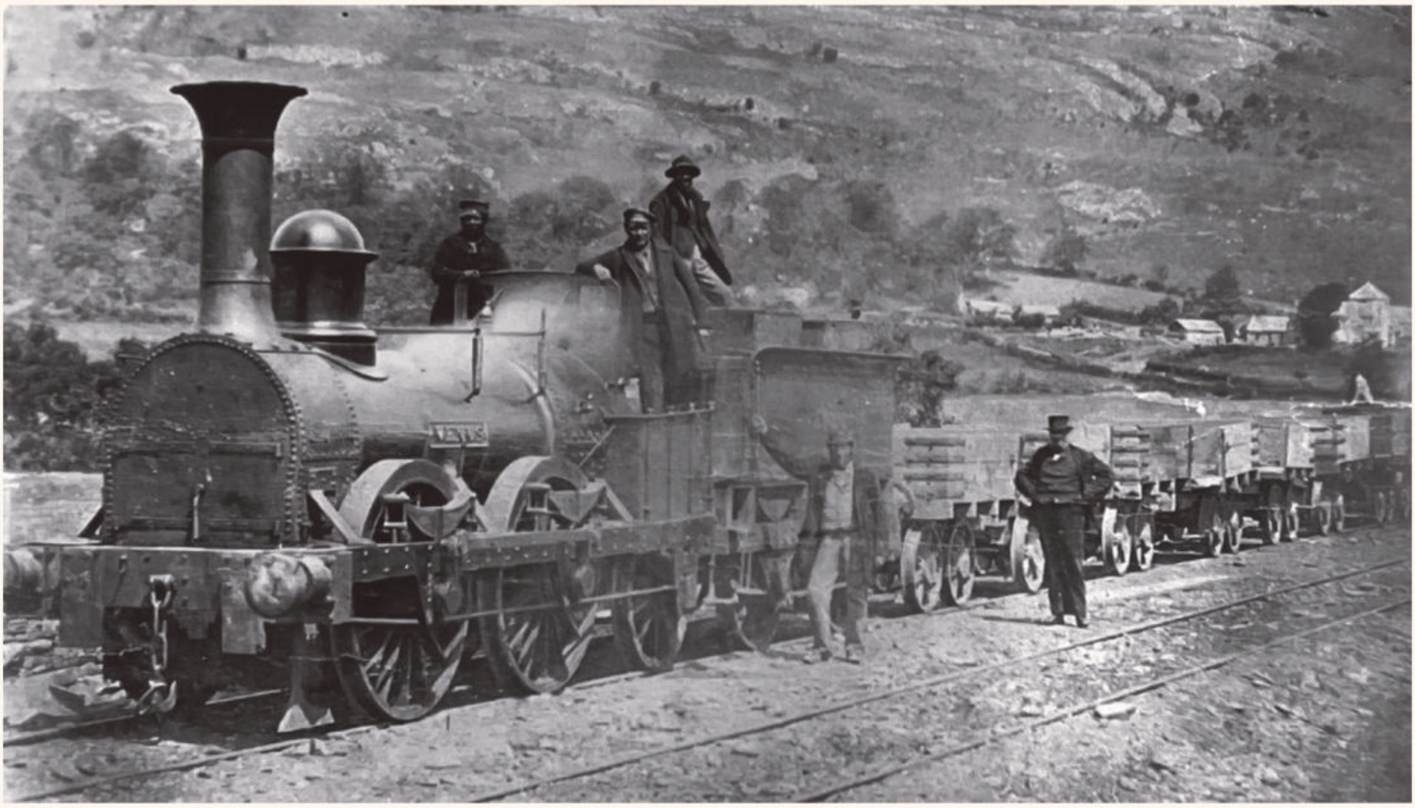
George Hammond Whalley (1813-1878) of Plas Madoc Hall near Ruabon played a leading role in the birth of the Mid Wales line and was company chairman during the main construction period. A lawyer and Liberal MP, he was also chairman of the Llanidloes & Newtown and Oswestry & Newtown Railways. (Paul Bowen Collection)

By the 1850s England had an extensive system of newly built railways but in contrast the railway map of Wales showed comparatively little development apart from the North Wales coast and in South Wales. The 'Railway Mania' came slowly to Wales but the late 1850s and 1860s saw considerable railway building there even in the more central and rural areas. A line which emerged at that time was the Mid Wales, a long 48-mile railway which commenced a few miles south of Llanidloes and whose metals extended to Talyllyn Junction just east of Brecon. This article explores the origins and construction of this line which had grand aspirations but in reality served a lightly populated rural area with small market towns such as Builth Wells and Rhayader. The Mid Wales story started in 1858, opening came in 1864 and the line survived for just under 100 years until December 1962 when the Moat Lane to Brecon service was withdrawn. Promoted by local people, it was embroiled in conflict with rival schemes, faced challenging engineering issues in the Upper Wye valley, financial problems were ever-present and there was even a navvies' riot in 1863. In common with other speculative Welsh lines built around this time, the Mid Wales lacked significant traffic potential but members of the local business, political and landed communities drove the project forward in the belief that the railway would promote economic development and prosperity.

Although a Manchester to Milford Haven trunk route had been proposed in the 1840s, this did not materialise and whilst the Shrewsbury & Chester Railway opened a branch from Gobowen to Oswestry in 1848, Mid Wales remained devoid of railways. Local community leaders in the Llanidloes and Newtown area, however, recognised the benefit railways could bring and in 1853 an Act of Parliament was passed authorising construction of a railway serving what were two traditional centres of textile manufacture. The following year a Newtown to Oswestry railway was proposed to connect with the national network and the Act authorising construction was passed in 1855. Both railways had financial issues and construction was protracted, the Llanidloes & Newtown opening in 1859 and the Oswestry & Newtown in 1861. Another railway which played a part in the Mid Wales story was the Vale of Towy Railway, authorised in July 1854 and which opened between Llanelly and Llandovery in 1858.

It was against this background that the Mid Wales Railway was born, a prospectus for which was issued in 1859 under the ambitious title of the Manchester, Liverpool, Swansea & Milford Haven Junction Railway. 666,000 £10 shares were to be offered to the public to build 81 miles of line at a cost of no more than £10,000 per mile inclusive of land, stations and rolling stock. This referred to a line from Llanidloes to Llandovery and also a southward extension to a junction with the proposed Brecon & Merthyr Railway. The promoters described the line in ambitious terms, in contrast to the role the railway was eventually to play. The Mid Wales Railway, the prospectus said, "will complete the direct communication between the great manufacturing towns of Lancashire and the Midland counties of England, the rich mineral districts of South Wales and the ports of Swansea and Milford Haven". There was also good potential for local traffic with the railway opening up to tourists "the magnificent scenery of the interior of Wales, as well as the mineral springs of Breconshire" whilst the line would also cater for visitors to seaside resorts such as Aberystwyth. Limestone traffic to the smelter works at Swansea was also anticipated,

Locomotive *Venus* with a contractor's train close to the site of Builth Wells railway station. This was a former Newcastle & Carlisle Railway locomotive built by the Thompson brothers at Wylam ironworks. By 1862 Llanidloes was connected to the national railway system at both Oswestry and Shrewsbury, allowing transfer of *Venus* to the Mid Wales. (by permission of Powys Archives)



OF THE MID WALES RAILWAY 1858-1864

This Mid Wales boundary marker still proudly stands close to the former Rhayader railway station. Nearby on 2nd September 1859 the ceremony of cutting the first sod took place in very wet weather and it was an unhappy event as deposed chairman Mr. Whalley clashed with railway contractors Thomas Savin and David Davies. (Paul Bowen)

whilst coal, pitwood, slate and lime would also provide important freight traffic.

A provisional board of directors met on 12th January 1859 when Mr. G. H. Whalley MP was elected chairman and on 1st August 1859 a Mid Wales Act of Parliament authorised construction from Llanidloes to Newbridge on Wye. Whalley was a lawyer and Liberal MP for Peterborough who lived at Plas Madoc, near Ruabon. Chairman of the Llanidloes & Newtown Railway, he was prominent in railway building in Mid Wales from the 1850s. The first Ordinary General Meeting of the company was in London on Saturday 27th August 1859 at the London Tavern, Bishopsgate. London was to be the regular venue for company meetings, a choice justified by Whalley because much of the line's capital was expected to come from there. "This line he did not look upon as a mere ordinary local railway. He regarded it as of national importance. This and its extensive prospects for paying had attracted the attention of capital in London, and it was thought proper to hold the meeting in London".

In their report directors referred to problems over the company's Bill which had sought to authorise construction of the line from Llanidloes to the Vale of Towy Railway at Llandovery. The Bill had been deposited in two sections, from Llanidloes to Newbridge and from Newbridge to Llandovery, but "owing to the stern opposition of the parties who were promoting a line from Knighton to Llandrindod, the Committee of the House of Commons decided that the preamble of this Company's Bill be proved only in respect to the section from Llanidloes to Newbridge". The Mid Wales Railway Act of 1859 authorised the issue of £150,000 in shares and £56,000 in loans. Efforts to reach Llandovery were clearly complicated by developments from the east and authorisation in 1858 of the railway from Craven Arms to Knighton. In August 1859 the Central Wales Extension Railway received approval to extend to Llandrindod Wells but its target was also Llandovery. Despite this set-back, Mid Wales directors sought to prepare a second Parliamentary application for the disputed section.

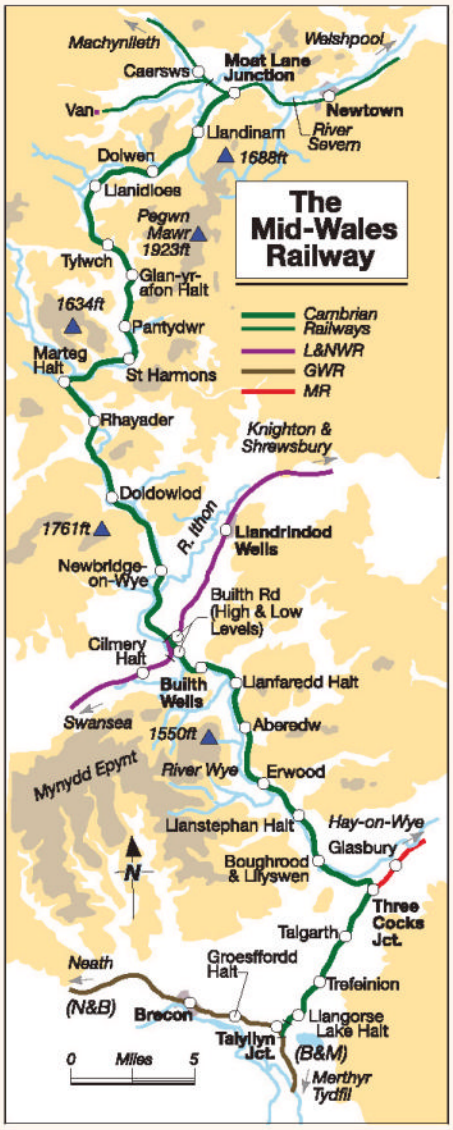
The meeting ended in a stormy atmosphere with Mr. Savin successfully moving an amendment that David Pugh MP of Llanerchydol Hall, near Welshpool, be elected chairman in place of Mr. Whalley. The meeting adjourned and resumed on the following Tuesday at the Royal Oak Hotel, Welshpool. Whalley declined a seat on the board which now comprised nine members. Three were from London but the rest were local including James Watt Gibson Watt from Doldowlod Hall near Rhayader, Watkins Williams Wynn of Wynnstay Hall near Ruabon and William Lefeaux of Llanidloes who was involved in the local Van lead mines. Not surprisingly the directors had connections with existing Mid Wales railways. William Lloyd of Newtown was a director of the Shrewsbury & Newtown and Llanidloes & Newtown Railway companies, whilst John Powell Wilding of Montgomery also sat on the board of the Llanidloes & Newtown Railway. The engineer chosen for the project was Benjamin Piercy of Welshpool who also acted as engineer to the Oswestry & Newtown, Llanidloes & Newtown and Denbigh & Corwen Railways. Company secretary was Mr. R. S. France who had offices at Claremont, Shrewsbury, and who was also secretary to the Shrewsbury & Welshpool Railway Company.

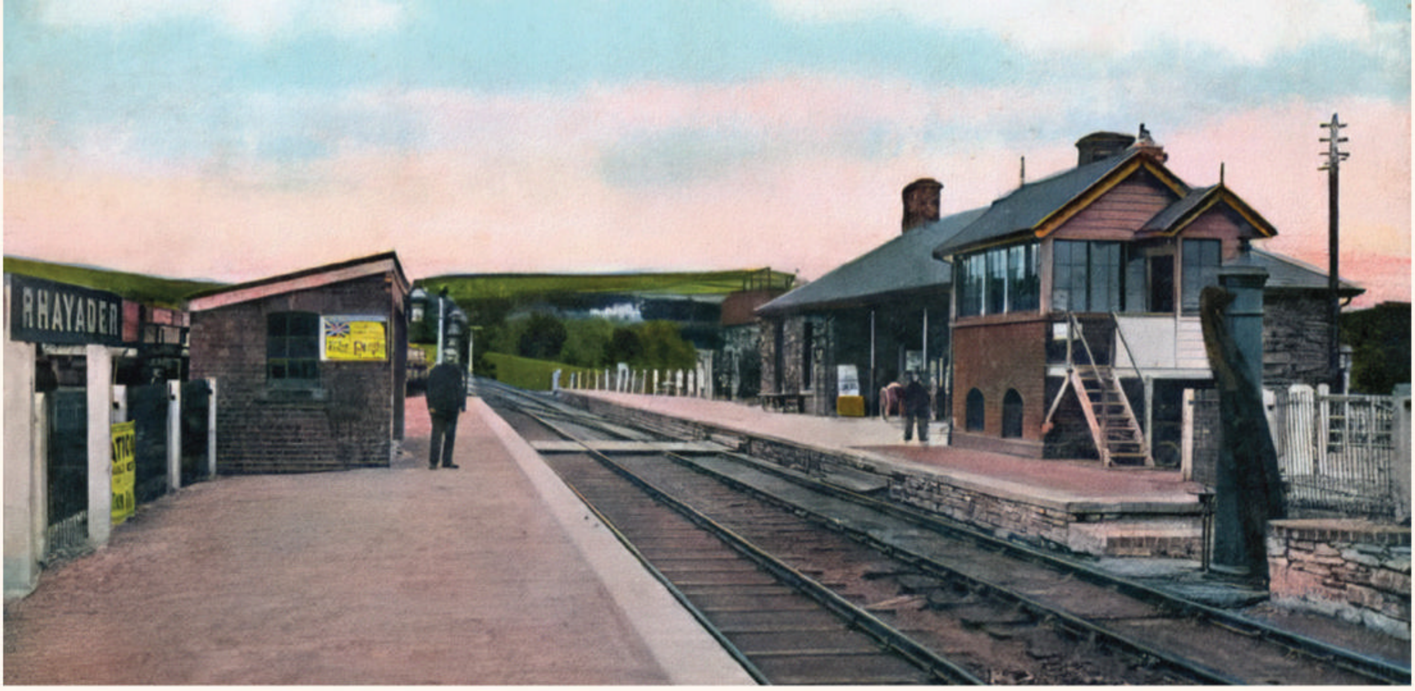
The Mid Wales renewed its drive on Llandovery, presenting a new Bill to Parliament in February 1860 at the same time that the London & North Western Railway backed Central Wales Extension Railway deposited a Bill seeking Parliamentary approval for a line from Knighton to Llandovery. As the Mid Wales Railway had no firm financial resources, local contactors David Davies and Thomas Savin agreed to provide a parliamentary deposit of £33,600, possibly with a view to securing construction rights. Further south the aspirations of other companies spurred the Mid Wales Railway to include in its Bill powers for a line southwards to connect with the Hereford, Hay & Brecon Railway and also the Brecon & Merthyr Railway.

Efforts by the company to obtain its Acts of Parliament were lengthy and expensive as illustrated by the Mid Wales Extension Act of 1860. Full details of the Bill had to be placed for public inspection and it was printed in full in the *Brecon Journal and County Advertiser* on Saturday 2nd November 1859 and subsequently in the *London Gazette*. Duplicate plans and sections of the railway works were available for public inspection at Kington, Brecon and Llandovery.

Very detailed descriptions of the line were published in the Bill, emphasising the important role which surveyors and solicitors played in its preparation. The section from Newbridge to Builth Wells, for instance, was described as "A railway commencing by a junction with the authorised Mid Wales Railway 1859 in a field Numbered 71 on the deposited plans of the said railway situated in the parish of Llanyre in the county of Radnor and terminating in a field called Dol-Gro, situate in the parish of Llanelwedd in the County of Radnor, and now in the occupation of Thomas Williams." That same Bill also referred to a double junction "being a spot 100 yards or thereabout north west of the park gate leading to the lodge now in the occupation of General Thomas Wood in a field, now in the occupation of Lewis Watkins in the Parish of Aberllyfni in the County of Brecon", a reference to what would become the celebrated junction of Three Cocks. The National Library of Wales has an extensive collection of original maps and plans relating to the Mid Wales Railway from 1859-1865 highlighting the important role played by surveyors and cartographers in the development of railways.

The Bill went before a Parliamentary committee in March 1860 where it was hotly contested. The section from Newbridge to





An early twentieth century postcard view of Rhayader station which had probably changed little since opening in September 1864. Board of Trade Inspector Colonel Yolland insisted on safety grounds that the platform ended before the ground level water crane. In May 1863 the town was the focus for an anti-Irish navvies riot. (Paul Bowen Collection)

Brynderwen near Brecon was passed but that to Llandovery was struck out of the Bill with powers given to the Central Wales Railway to extend to Llandovery. As the Bill proceeded to the House of Lords the Mid Wales held meetings at Brecon and Merthyr to galvanise support for its line and the Bill received Parliamentary assent in June 1860 with much local celebration including bell ringing at Builth and a bonfire with burning tar barrels at Talgarth.

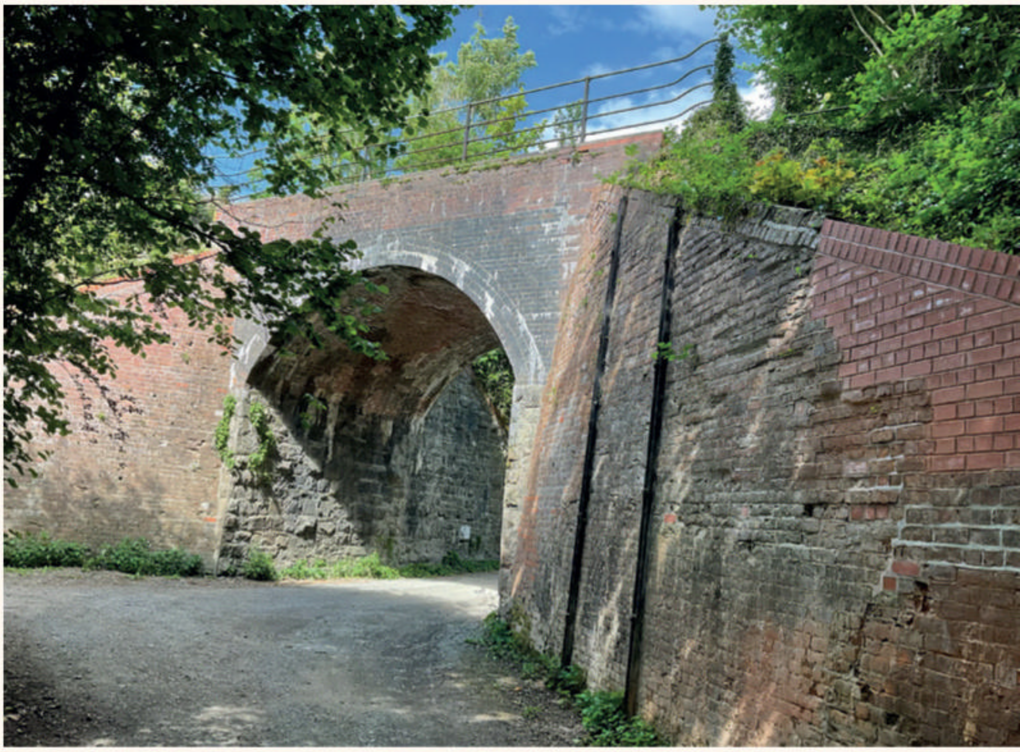
Problems arose with rival schemes at both the northern and southern ends of its territory. Access to Brecon saw the Mid Wales infighting with both the Brecon & Merthyr and Hereford, Hay & Brecon Railways. The latter attempted to buy the Hay Railway which was a 3ft 6in gauge tramway linking the Abergavenny & Brecon Canal at Brecon with the Kington Railway at Eardisley. Despite Mid-Wales efforts to thwart the sale by purchasing shares, its disposal to the Hereford, Hay & Brecon Railway was approved by shareholders on 6th June 1859. Both the Mid Wales and Brecon & Merthyr sought Parliamentary help as their interests were threatened and on 12th June 1861 Parliament authorised the Mid Wales to purchase the Three Cocks to Talyllyn section of the Hay Railway, whilst the Brecon & Merthyr took over the Talyllyn to Brecon section, arrangements ratified by the Hay Railway Act of 6th August 1860.

The Mid Wales also had complicated dealings in the north with the Manchester & Milford Railway which was authorised on 23rd July 1860 to build through difficult territory from Llanidloes to Pencader. The main dispute was the 1½ miles of line south from Llanidloes for which the Mid Wales Railway and Manchester & Milford had both obtained Parliamentary powers for the same route! After much dispute, Mid Wales directors announced a solution at the general meeting of February 1862 whereby the Llanidloes & Newtown Railway would build and own the disputed section and also construct a joint station at Llanidloes, the Penpontbren section being completed by February 1864.

Building the Mid-Wales was as protracted as the battle for Parliamentary approval. Construction did not really start until 1862 by which time Whalley was back in control of the company and Savin and Davis had split up and played little part in building the line. In March 1860 Benjamin Piercy informed shareholders at a special general meeting at the London Tavern that he was proceeding with the preparation of working plans and specifications. By August 1860 a contract to construct the line had been awarded to Mr. Alexander Thomas Gordon and priority was given to purchasing land to allow work to proceed from Llanidloes southwards. Negotiations with landowners, however, were challenging and by February 1861 directors had to resort to compulsory powers of purchase. Nevertheless, Piercy remained optimistic, commenting in his report of February 26th that "the plant and materials necessary for the construction of the line had been brought up on the ground. The whole of the roughest and heaviest portions of the lines have been definitely fixed and it is the intention of the contractor to commence the works at once".

Some work was in progress between Llanidloes and St. Harmon in the summer of 1861 but little had been achieved by February 1862 when Whalley informed shareholders that work on the line had been suspended "in consequence of the inability of the late

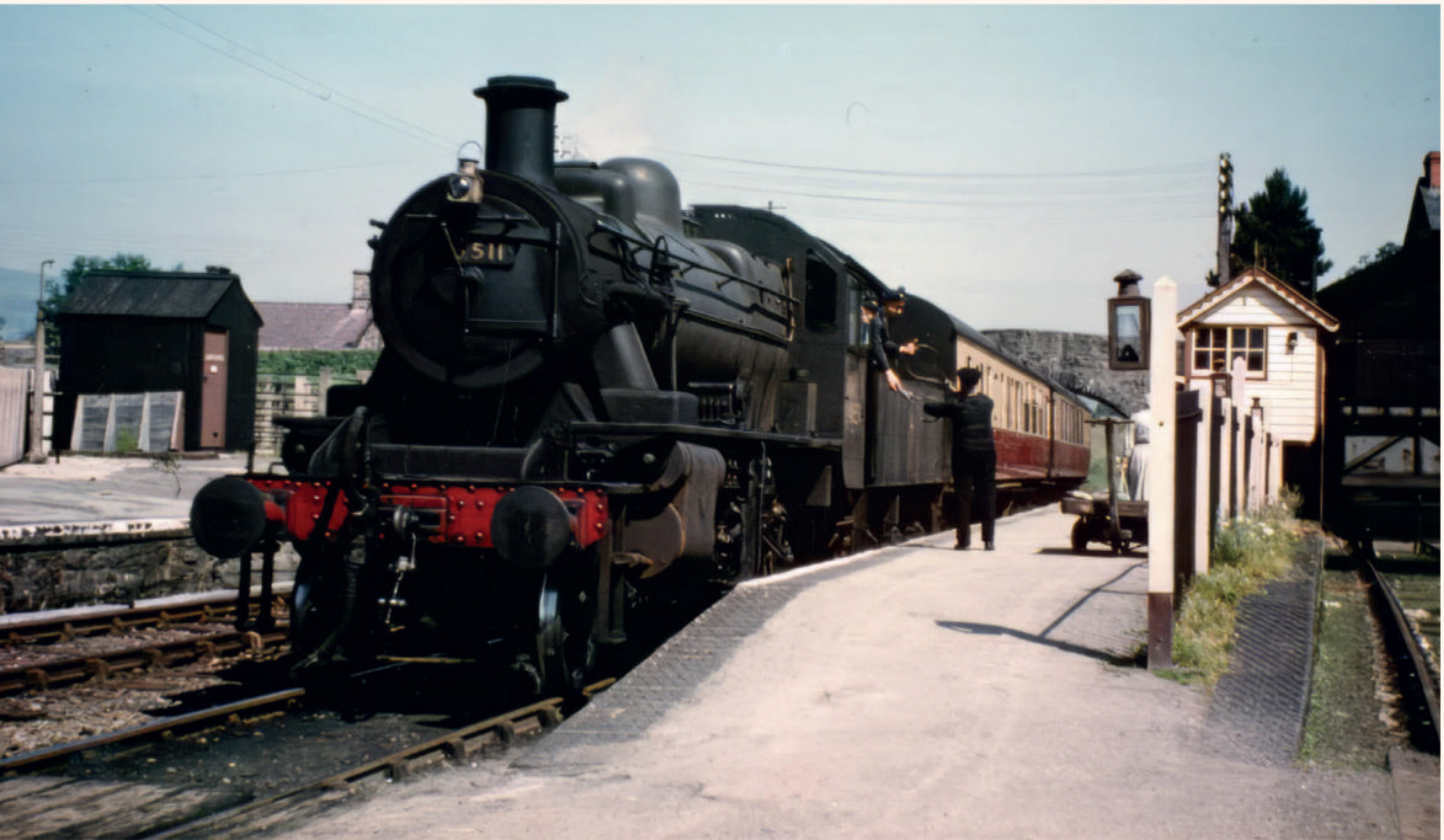
Colonel Yolland's final inspection of the Mid Wales Railway took place on 9th September 1864 but the evening before the wing wall of this underbridge at Newbridge on Wye collapsed after heavy rain. It remained problematic and has reinforcing rails marked Dowlais, CR, (Cambrian Railways),1903, whilst also showing evidence of recent refurbishment by Historic Railway Estates. {Paul Bowen}



contractor to carry out his contract". Gordon had, however, taken delivery at Llanidloes of substantial quantities of equipment which the company was being pressed to pay for including 28 miles of wire fencing, uncreosoted sleepers and rail fastenings provided by the Ebbw Vale Company.

Messrs. Watson and Overend of 47 Parliament Street, London, were appointed new contractors by March and they agreed to "execute the works to the satisfaction of the company engineer and the Government Inspector of Railways, purchase the land to the extent of £50,000 and pay law and engineering expenses". All materials were to be provided by the company which remained responsible for expenses up to the date of the contract. As payment, Watson and Overend would receive £223,000 in ordinary shares, £117,000 in debentures and £200,000 in Lloyds bonds. In hindsight, this was an unwise arrangement for the contractor whose financial return was dependent on the railway's profitability.

By the summer of 1862 the fortunes of the Mid Wales had improved. The greater part of the land between Pentpontbren and Newbridge had been acquired and Piercy in his August report commented that "very satisfactory progress is making on the hilliest section between Llanidloes and Rhayader". By February 1863 permanent way was being laid over eight miles of line between Llanidloes and Rhayader, 17 river and eight road diversions had been carried out, 23 culverts built and three viaducts over the Tylwch, Marteg and Wye valleys were nearly complete. A start had been made on Marteg Tunnel. "A shaft has been sunk. At the northern end a heavy cutting at the mouth of the tunnel had been got out, whilst at the south end considerable progress has been made with the tunnel." This area was clearly an important work site and a recent heritage assessment for The Radnorshire Wildlife Trust's Gilfach reserve identified evidence of the railway builders, a spoil heap and also a possible navvy camp on artificially levelled ground.



A view of Newbridge on Wye station in the late 1950s with LMS Ivatt Class 2 2-6-0 No.46511 on a Moat Lane to Brecon service. The crew are handing over the Doldowlod to Newbridge token in exchange for that for Builth Road. Construction to Newbridge was authorised in 1859 but the Mid Wales's objective of reaching Llandovery failed, forcing the main line southwards to Talyllyn Junction. (Rev. Richard Evans)

Company minutes of 16th July 1862 also highlighted progress. The Ebbw Vale Company was requested to deliver 1,000 tons of rail to Llanidloes station and Brecon and heavy expenditure was apparent. Mr. Noyes, company solicitor, produced a certificate for £14,000 in respect of land purchases, whilst Mr. Piercy also sought payment of £18,164 for 'work and materials'. The Mid Wales and other local lines being built had substantial and expensive ironwork requirements, for example for bridges, and much of this was supplied locally by the 'Railway Works' in Llanidloes which was established about 1860 by William Thomas and illustrated how the local economy benefited from railway construction. In 1867 after completion of the railway the Llanidloes foundry even had a spare pair of wrought iron girders from the Mid Wales project which Radnorshire's County Surveyor used to rebuild a local road bridge. Confirmation of the company's heavy expenditure on building was highlighted at the board meeting in November 1862 where it was resolved "that a call of £2 this day be made in respect of each share in the capital of the company to be paid on or before 26th December 1862".

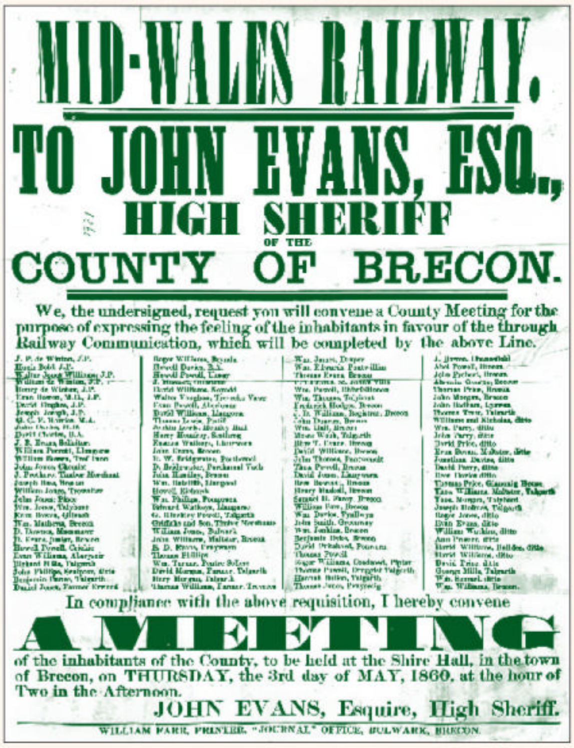
Whilst Piercy was overall engineer, there were notable contributions from other individuals including James Mansergh who later rose to prominence as one of Victorian Britain's greatest engineers. From 1862-1865 he was employed as contractor's agent for Messrs. John Watson and Company and played a key role in the day-to-day engineering work of the Mid-Wales. Whilst in the area he became familiar with the Elan and Claerwen valleys west of Rhayader and recognised their potential for water supply. In the 1890s he returned to the area as consulting engineer for Birmingham Corporation's huge Elan Valley reservoir project which was completed in 1904 and was only made possible by a branch railway from the Mid Wales line .

Many river crossings made the Mid Wales expensive to build and maintain. Ironwork for the bridges was produced locally at Thomas's Railway Works at Llanidloes. Five bridges were needed across the Wye including one at Newbridge where two cast iron columns survived the attention of the demolition team in the 1960s. (Paul Bowen)

As for the navvies who physically built the line, their life was incredibly hard. Although gunpowder was used for blasting, the removal of soil and rock was undertaken manually using wheelbarrow runs and horses. English, Welsh and Irish labourers helped to build the Mid Wales but anti-Irish sentiment led to serious disorder on Sunday 3rd May 1863 which is described in the *Hereford Journal* of 9th May 1863. A party of miners working at Marteg Tunnel were drinking at a local public house when it was decided to drive away all Irishmen working on the line, possibly because they were pushing down wage levels.

Rhayader was one of the mob's targets and although no lives were lost there was physical violence and injuries.. "On Monday morning an organised band of English and Welsh navvies, armed with staves, were seen proceeding from point to point upon the line, driving every Irishmen out and conducting them first to the contractor's office, in order that they might get their wages, and after which conducting them out of the town, mostly in the direction of Penybont and the roads leading southwards.". With up to 300 people involved in the skirmishes, the local police declined to interfere and magistrates seemed determined to just let the situation calm down. Most of the rioters resumed work on the Tuesday but on Wednesday a large group of policemen appeared in Rhayader and the magistrates swore in 100 special constables as a contingency for future disorder.

The Radnor Police Committee accounts for January 1864 includes a payment £74 15 shillings, representing 'cash from the M.W.R. Co. for services of police officers' so clearly the railway company was funding extra police in response to the navvies' threat to law and order. Local newspapers do record some court cases involving the railway builders: for example, in February 1864 Charles Bird and James Bennett, 'navvies', were sentenced to 21 days' hard labour at Brecon County Gaol for stealing a hat and tobacco box from John Powell at Builth. In the same month James Flye, a 'railway time keeper', was committed to Brecon Gaol having broken into a house at Talgarth and stolen a cheque for £13 10 shillings.



MID-WALES RAILWAY.

TO JOHN EVANS, ESQ.,

HIGH SHERIFF

OF THE

COUNTY OF BRECON.

We, the undersigned, request you will convene a County Meeting for the purpose of expressing the feeling of the inhabitants in favour of the through Railway Communication, which will be completed by the above Line.

In compliance with the above requisition, I hereby convene

A MEETING

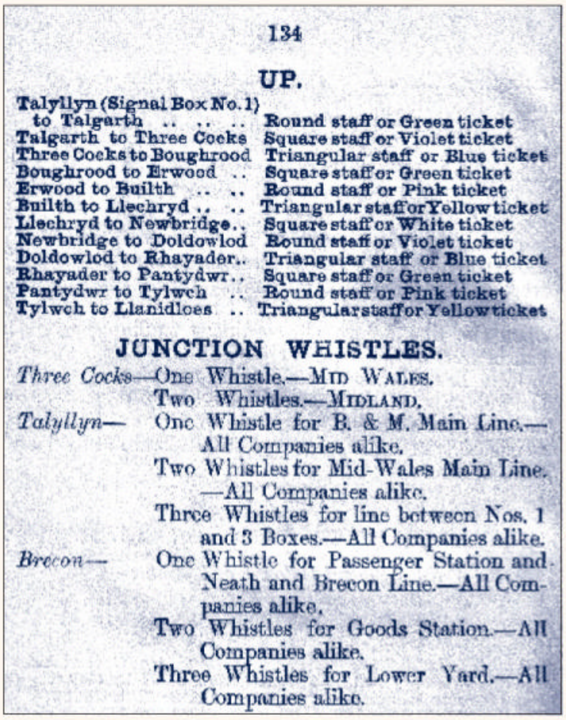
of the inhabitants of the County, to be held at the Shire Hall, in the town of Brecon, on THURSDAY, the 3rd day of MAY, 1860, at the hour of Two in the Afternoon.

JOHN EVANS, Esquire, High Sheriff.

WILLIAM FARR, PRINTER, "JOURNAL" OFFICE, BULWARK, BRECON.

The Mid Wales was proactive in gaining local support when promoting its Parliamentary Bill in 1860 and this poster advertises a meeting at Brecon. Supporters listed include several justices of the peace, businesses such as timber merchants and farmers. An Act of Parliament passed on 3rd July authorised the Mid Wales to build from Newbridge to Talyllyn.
(By permission of Powys Archives)

The Mid Wales was a long, single track railway with no fewer than twelve block sections as outlined in the company's 1879 rule book. Llechryd was renamed Builth Road in 1889. Instructions for junction whistles also highlight how from Three Cocks to Brecon tracks were shared with other railway companies.
(Paul Bowen Collection)



134

UP.

Talyllyn (Signal Box No. 1) to Talgarth	Round staff or Green ticket
Talgarth to Three Cocks	Square staff or Violet ticket
Three Cocks to Boughrood	Triangular staff or Blue ticket
Boughrood to Erwood	Square staff or Green ticket
Erwood to Builth	Round staff or Pink ticket
Builth to Llechryd	Triangular staff or Yellow ticket
Llechryd to Newbridge	Square staff or White ticket
Newbridge to Doldowlod	Round staff or Violet ticket
Doldowlod to Rhayader	Triangular staff or Blue ticket
Rhayader to Pantydwr	Square staff or Green ticket
Pantydwr to Tylwch	Round staff or Pink ticket
Tylwch to Llanidloes	Triangular staff or Yellow ticket

JUNCTION WHISTLES.

Three Cocks—One Whistle.—MID WALES.
Two Whistles.—MIDLAND.
Talyllyn— One Whistle for B. & M. Main Line.—All Companies alike.
Two Whistles for Mid-Wales Main Line.—All Companies alike.
Three Whistles for line between Nos. 1 and 3 Boxes.—All Companies alike.
Brecon— One Whistle for Passenger Station and Neath and Brecon Line.—All Companies alike.
Two Whistles for Goods Station.—All Companies alike.
Three Whistles for Lower Yard.—All Companies alike.

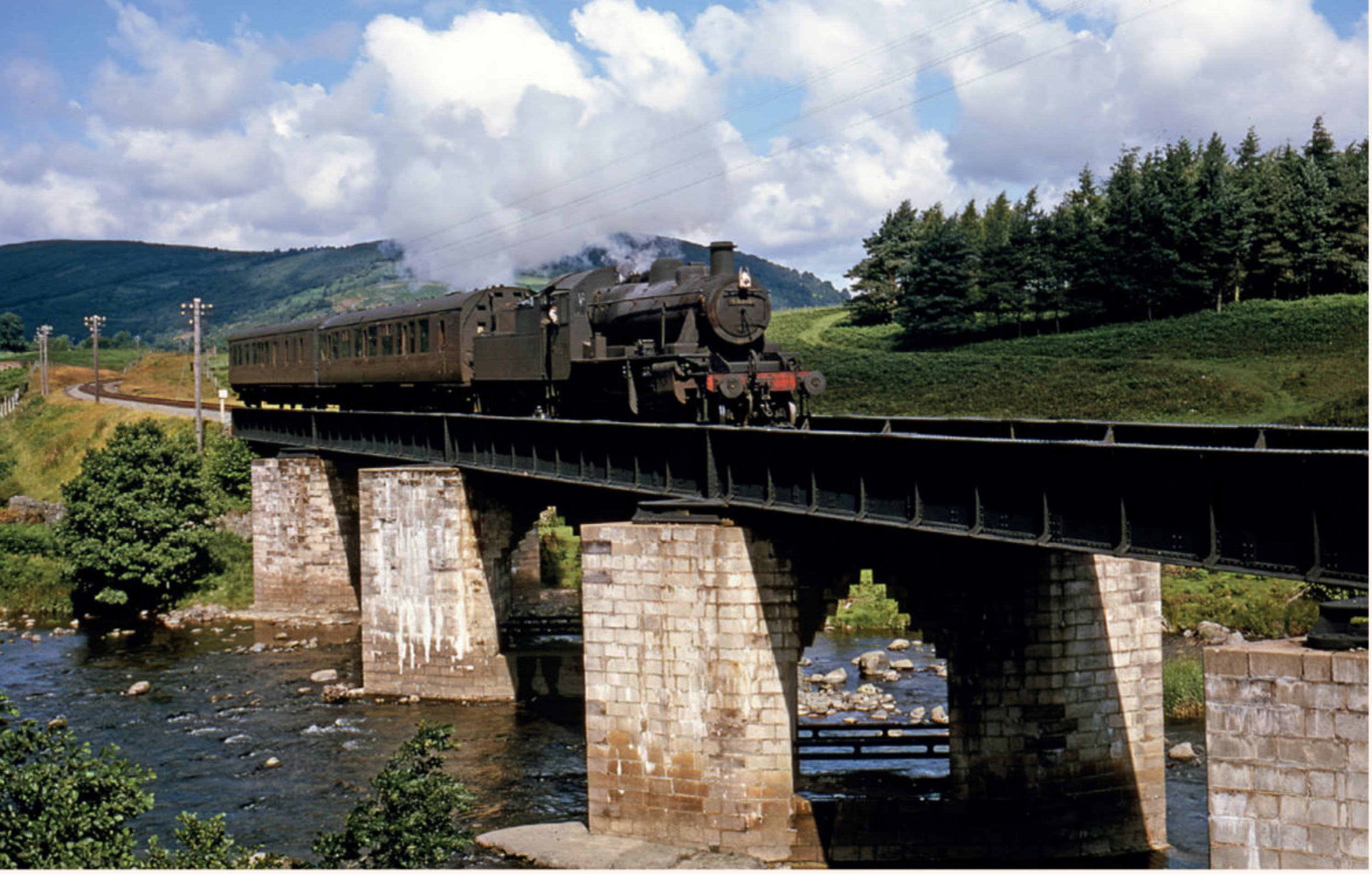
By spring 1863, the contractors claimed that the line to Rhayader could be open by the autumn but rock falls in Marteg Tunnel caused delay whilst a brick lining was addded. Nevertheless, the summer of 1863 was a milestone in the line's construction as a locomotive began working the section from Llanidloes to Marteg. Intense activity also proceeded south of Rhayader but progress was impeded by land acquisition problems below Builth. Many landowners had been cooperative but directors in August 1863 regretted that "some of them have made exorbitant claims upon the company, entirely regardless of the great benefit which the company will confer upon their property". With construction well advanced, attention was given to stations. In the *Hereford Times* for 11th July 1863 there was reference to the construction of Builth, Erwood, Boughrood, Talgarth and Trewalter stations and those wishing to tender were invited to consult plans and specifications at the Mid Wales Railway contractor's office at Builth.

With all this construction activity came heavy financial cost and newspaper advertisements at this time highlighted efforts to raise new funds. In the *Morning Herald* on 28th July 1863 the London Financial Association of Threadneedle Street requested applications for Mid Wales Railway Five Per Cent Preference shares, 20,000 shares of £10 each being available. Prospective investors were advised that the only prior charge upon the line was the debenture debt of £202,000, whilst interest up to the end of 1864 was payable by the contactors who had lodged the necessary funds with the association.

Company correspondence in 1863 confirms that railway building was at an advanced stage and focus was shifting to when the line would be in operation. In the May 1863 board meeting a letter was read from director J. W. G. Watt Esq. about a station near his home at Doldowlod Hall. It was resolved that the station be called Doldowlod and the solicitor was requested to write to him to that effect. At the October board meeting the engineer highlighted the need three miles south of Rhayader for a level crossing of the public road leading to the church at Llanwrthl and the solicitor was instructed to apply for the necessary powers. At the November meeting a letter was read from farmers Henry Lingen and Ben Price requesting a siding at Glanravon and this was referred to Messrs. Watson and Overend.

In March 1864 the *Brecon Journal* was suggesting an opening of the whole line by early May. "The Mid Wales Railway, we are happy to state, is rapidly approaching completion and there is little doubt entertained that it will be open by the 1st of May as promised by the directors". It was not, however, until late summer that the line was ready for Board of Trade inspection. Addressing shareholders in London on 2nd August, Mr. Whalley, stated that "I believe that no line in the Kingdom was ever handed over for the public's use in a more complete and thoroughly efficient state. On Monday next, the government inspector will, I have no doubt, also confirm their opinion." Inspector of Railways Colonel Yolland visited the line on 8th, 9th and 10th August. Yolland had joined the Inspectorate in 1854 and later in 1877 became Chief Inspector. He inspected many new lines and was noted for his thoroughness and commitment to improving rail safety, being a strong advocate of block working and interlocking between points and signals. His rigorous approach to safety and railway inspection is clearly evident in his handwritten report of the Mid Wales which provides valuable information about the line as initially built.

Stations with passing loops had been installed at Tylwch, Pantydwr, Rhayader, Doldowlod, Newbridge, Builth, Erwood, Boughrood, Three Cocks, Talgarth and Trefeinon. Broken stone or



In the final months of the line's operation, 2-6-0 No.46516 crosses the Wye just south of Doldowlod station on 8th August 1962 with a Moat Lane to Brecon train. Iron bracing between the piers possibly suggest that the brickwork encases the original ironwork and was added as a strengthening measure. (Colour-Rail.com 390995)

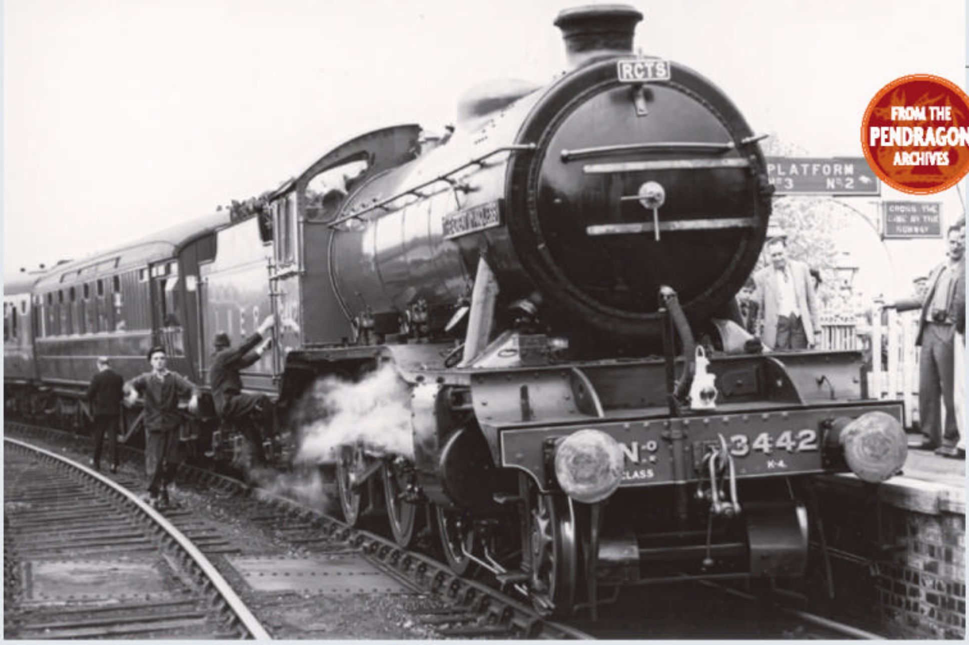
gravel was used as ballast which was generally 10in deep beneath the sleepers, but in some places was "not good". The line had nineteen over and 42 underbridges in addition to three viaducts and two tunnels. The most important work on the line was the lattice girder bridge of 191ft over the River Wye at Boughrood. Yolland considered this to be 'a good one' and when loaded with 200 tons of stock exhibited a deflection of 1½in. He thought the line to be generally "well executed", but there are portions of it "wanting attention at sundry places which have been pointed out to the resident engineer". Signalling was one aspect which concerned Yolland for at Three Cocks and Brynderwen (Talyllyn) Junctions equipment was "altogether incomplete", whilst at Doldowlod, Newbridge, Talgarth, Trefeinon and Brynderwen stations he ordered the repositioning of distant signals. Improvements were also needed at station areas some of whose buildings and platforms were incomplete. At Rhayader station the water crane was too close to the running rails and the platform needed shortening so that it stopped short of the crane. Yolland also noted that clocks were still required at some of the stations.

Yolland gave careful attention to the permanent way which he considered "somewhat slight for the heavy inclines". Chairs next to the points and in the middle of each rail were ordered to be replaced by heavy ones weighing about 30 pounds each but "12 months might be allowed for this to be done, provided an undertaking was received from the company". South of Builth he considered the line hurriedly completed compared to the northern section and in many parts it required lifting and packing, especially near and over underbridges and viaducts. Track alterations were also called for. Four facing points and crossover roads at Newbridge, Builth, Erwood and Boughrood were to be severed and a siding on a 1 in 75 incline at Trefeinon station removed.

Alterations were also required to some of the structures on the line. Tie rods, for instance, had to be fitted to one bridge to keep the timber balks in position to avoid the track going out of gauge, the cast iron pillars of the Screen Mills Viaduct needed iron bracing and drainage had to be improved in one of the tunnels. Yolland concluded that "by reason of the incompleteness of the works, the Mid Wales Railway cannot be opened to traffic without danger to the public".

Remedial action, however, was swift and considerable progress had been made when Yolland made a second inspection on 9th September. Signalling at Brynderwen and Three Cocks was complete apart from 24 hours work at the former junction. The inspecting officer was keen to ensure that the company adopted a safe method of operation and owing to steep inclines, he rejected the long-term use of a train staff and ticket system by which one train was permitted to follow another at an interval of five minutes, insisting that a written undertaking be given that within two months the working of the line be "conducted entirely by telegraph on the block system". In sanctioning the line's opening, Yolland sounded a cautionary note. "I have only to repeat my suggestion that the line will be worked at moderate speed and that particular attention be devoted to the embankments and cuttings when the wet weather starts." This last comment was particularly pertinent for on the night before Yolland's visit the wing wall of an under-bridge at Newbridge had collapsed due to heavy rains.

The railway officially opened to passenger traffic on Wednesday 21st September 1864, goods traffic having commenced earlier in the month. From the establishment of the Mid Wales Railway Company in 1859, it had taken six, hard, long years before it ran its first train from Llanidloes to Brecon and these years provide insight into the challenges of bringing a new railway into existence. Considerable legal and surveying work had to be undertaken and then there was the battle to secure Acts of Parliament. The skilful engineers and navvies who physically constructed the line deserve huge credit for their impressive achievement but all this, however, was not possible without raising considerable financial resources. It was a struggle to create the Mid Wales Railway and from 1864 until 1888 when the Cambrian Railways took over its operation, the company faced huge challenges in trying to make its line a viable business. By the end of 1864 the Mid Wales project had consumed £924,998. The vast majority of this, £688,524, was spent on 'Construction of Line and Purchase of Material' but there were other costly components. 'Preliminary and Parliamentary expenses' consumed £39,706, whilst 'Purchase of Land' came in at £64,838. On opening in 1864 the railway had quite basic facilities and, as Yolland's report highlighted, there was clearly a need for infrastructure improvements and in the railway's early operational years significant expenditure was necessary, even on rail and sleepers. Like many Welsh lines, the building of the Mid Wales was not a financial success, but socially and economically it was of great benefit to the Radnorshire and Breconshire communities which it served until the lorry and and car finally drove away business in the 1950s.



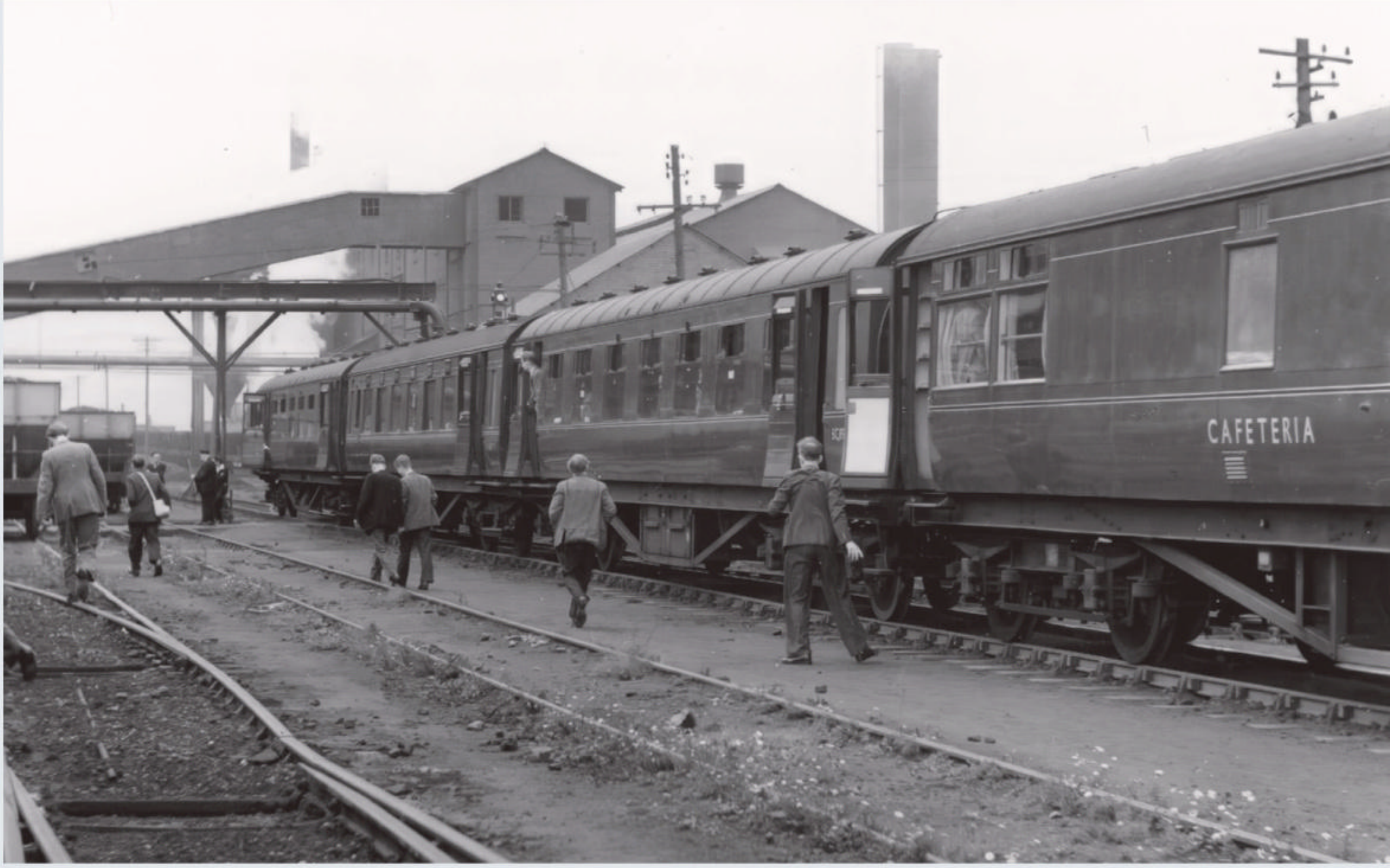
FROM THE PENDRAGON ARCHIVES

MORE OF

TOP: **This was the first outing by Viscount Garnock's newly restored LNER K4 2-6-0 No.3442 *The Great Marquess,* the RCTS 'Dalesman' tour from Bradford on 4th May 1963, visiting Ilkley, Grassington, Barnoldswick and the Padiham loop during its roving. However, it ran increasingly late throughout due to the poor setting of the valves and was 2½ hours late back in Bradford, the terminus having otherwise closed for the night! Earlier in the day things had not deteriorated too far when the train paused at Arthington for the engine to run round.**

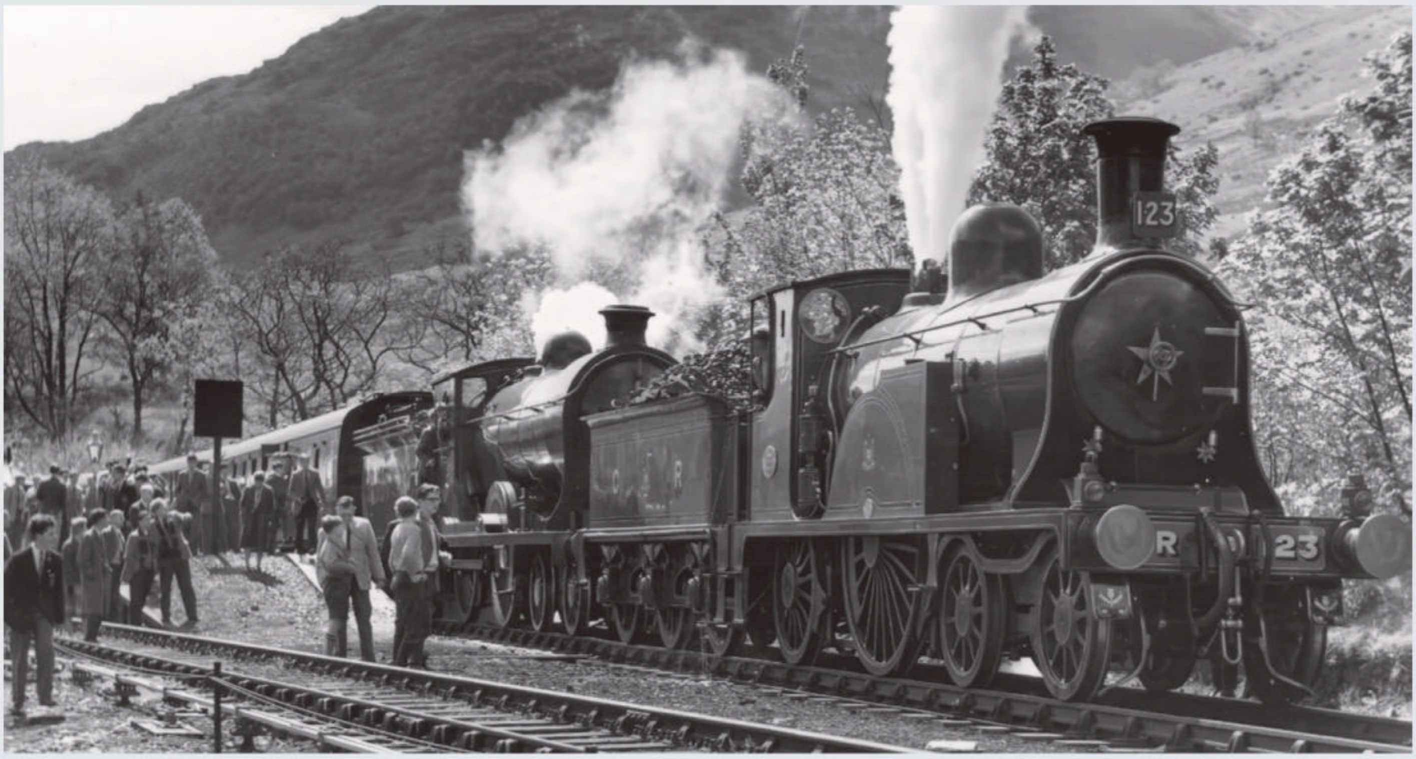
LEFT: **The five-day 'Scottish Rail Tour' of the SLS/RCTS were quite a feature of the calendar and on 16th June 1960 NBR J37 0-6-0 No.64615 was wandering the Inverbervie branch between North Water Bridge and St. Cyrus.**

BELOW: **The joint Manchester and Stephenson Locomotive Societies tours were described in last month's magazine, one being the 'Furness Rail Tour' on 27th August 1961 from Lancaster visiting various branches between Barrow, Coniston, Foxfield and Millom. One unlikely result was the appearance of the train complete with cafeteria car within the sidings of the Millom Iron Works! In the light of recent rulings, the attitude to opening doors and track level boarding was very different then...**



TYSON'S TOURS

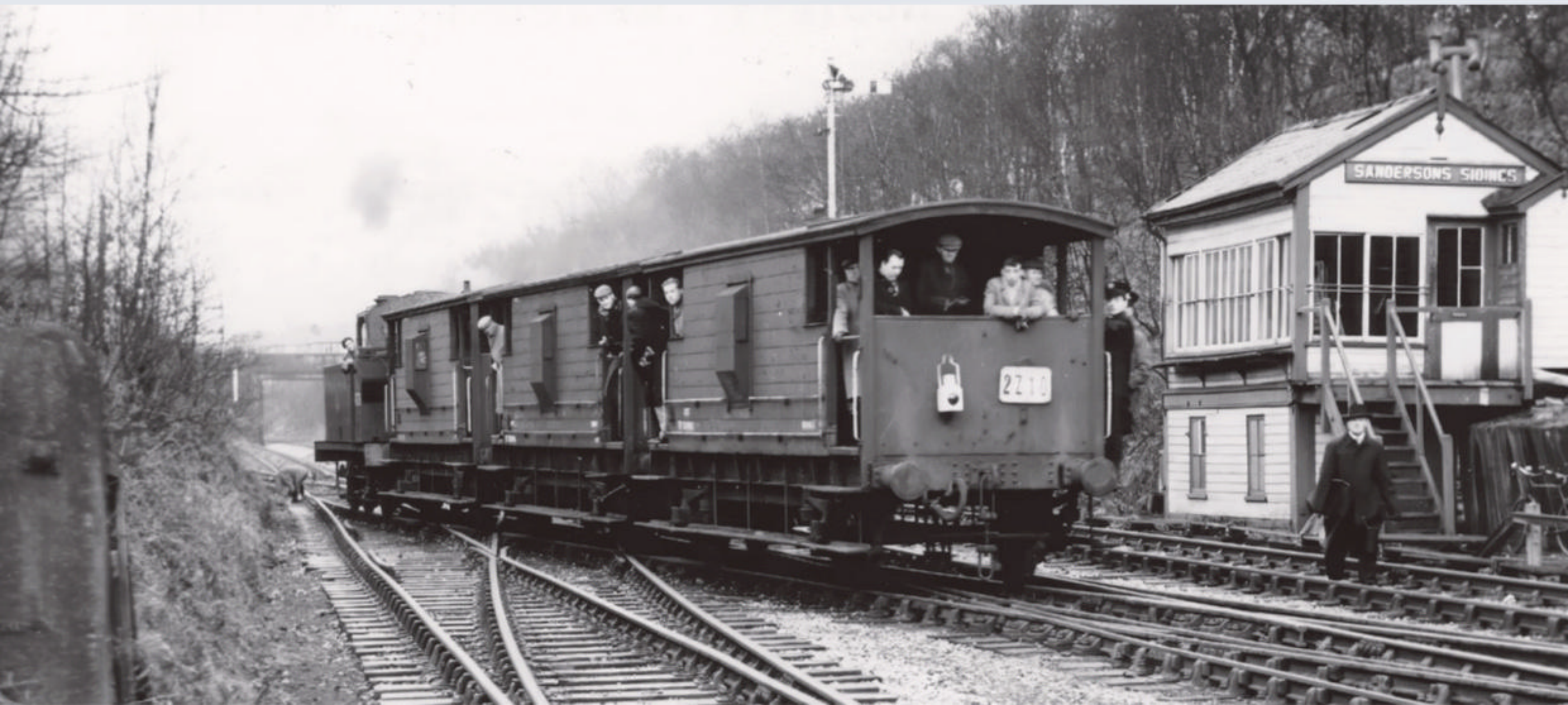
Another selection from **ALAN TYSON**'s photographs taken during his railtour adventures in the 1960s

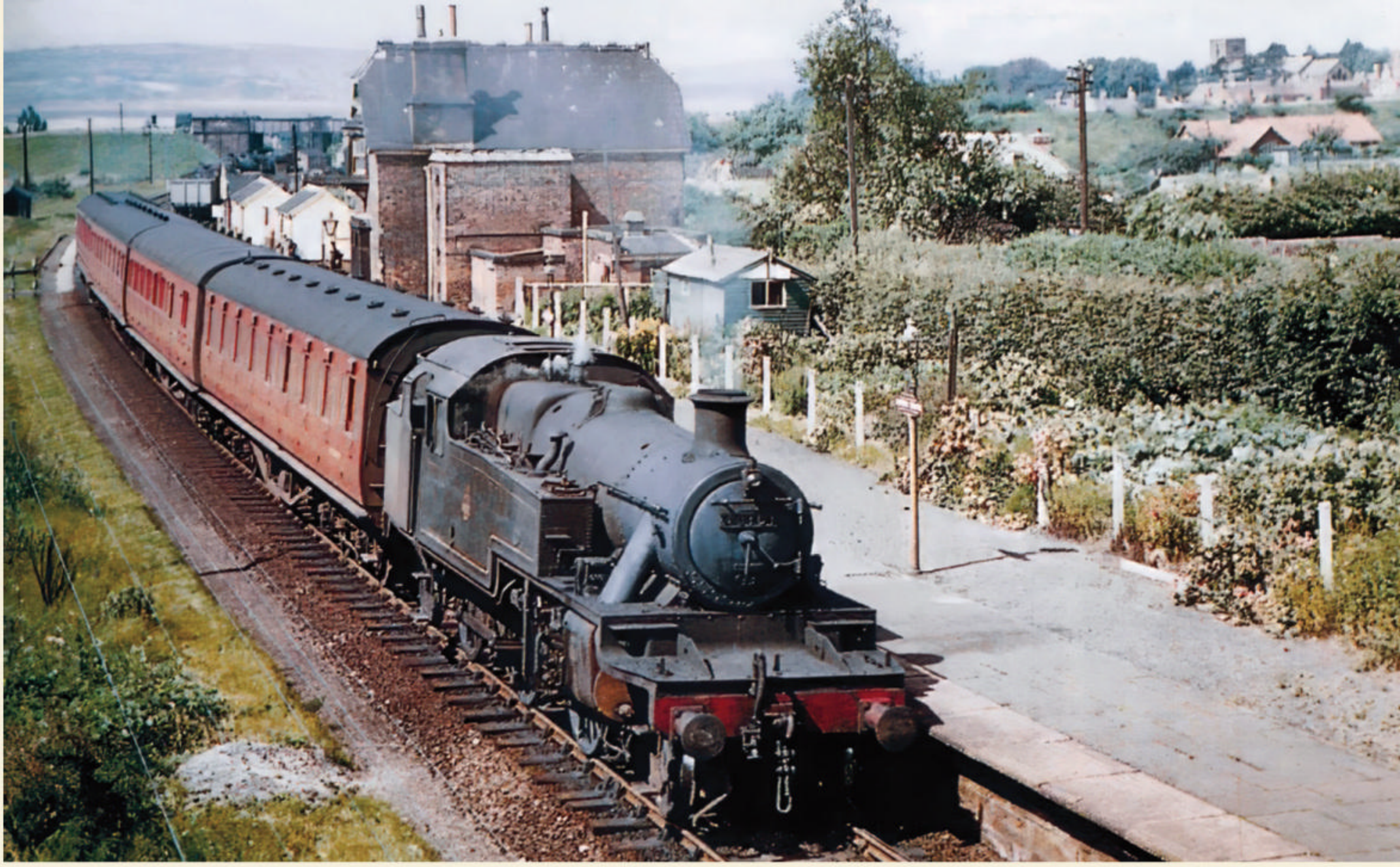


ABOVE: **The quartet of restored Scottish pre-grouping locomotives became firm favourites in the late 1950s/ early '60s and on 12th May 1962 the Caledonian Railway 4-2-2 No.123 and North British Railway 4-4-0 No.256 *Glen Douglas* took an SLS tour from Glasgow to Oban and back, calling here at Ardlui.**

RIGHT: **Mr. Pegler's preserved LNER A3 Pacific No.4472 *Flying Scotsman* was starting to be a familiar sight on railtours in 1963 and on 15th June that year it had arrived at London Marylebone with a special from Sheffield over the Great Central route, preparing to separate the buckeye coupling.**

BELOW: **A complete contrast was the 'brake van tour' which became a favoured option for exploring local goods lines. Three of them were used by the Branch Line Society on 16th March 1963 in the Manchester area and LMS 3F 0-6-0T No.47378, nicely cleaned for the occasion, is bringing them from Sanderson's Sidings, serving the former Bridgewater Collieries system, on to the ex-LNWR line near Worsley.**





The year is 1953 and ex-LMS Stanier 2-6-2T No.40103 has stopped at Neston South station to set down and pick up passengers while en route to Birkenhead Woodside. The station at Neston was renamed Neston South in September 1952 to distinguish it from the nearby station also called Neston on the former Great Central line. No.40103 was a relatively short-lived allocation at Birkenhead between November 1952 and September 1954. (Author's Collection)

THE BIRKENHEAD JOINT
BRANCH REVISITED

PART ONE

BY STAN YATES

A brief history

It is over 60 years since the Hooton to West Kirby branch line closed to traffic. Regular passenger traffic ceased in 1956 with freight traffic suffering the same fate in 1962. I only became aware of the presence of the branch line as a young child on a family outing on a summer Saturday in 1958.

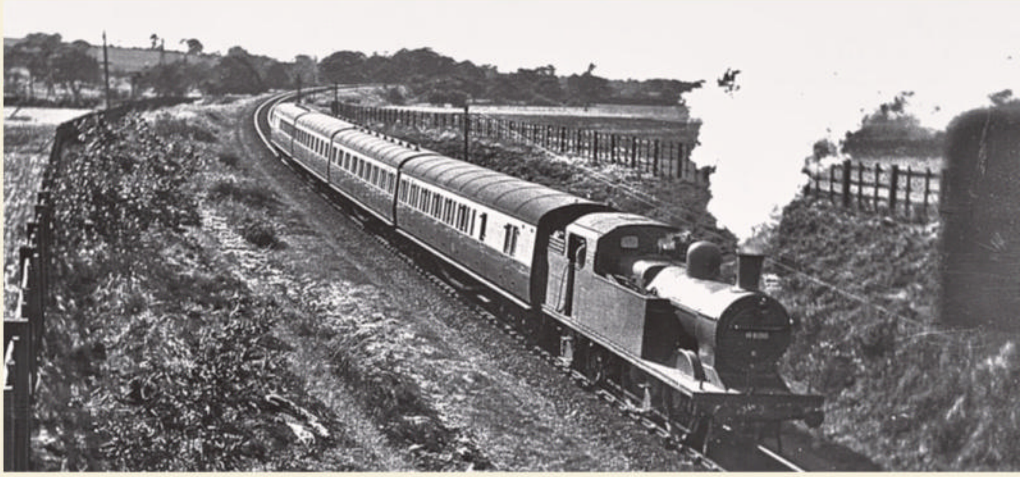
The branch line was constructed by the Birkenhead Railway, also known as the Birkenhead Joint. The Great Western Railway and London & North Western Railway had combined to purchase the Birkenhead Railway and took control of its operations in November 1860. The new management inherited the Birkenhead to Chester line opened in September 1840 and the Chester to Walton Junction line (just south of Warrington) which had opened in December 1850. There were ambitious plans for further development resulting in the opening of the branch from Hooton to Helsby in July 1863 and the Hooton to Parkgate branch in October 1866. It is this latter branch and its extension to West Kirby in April 1886 which forms the subject of this article.

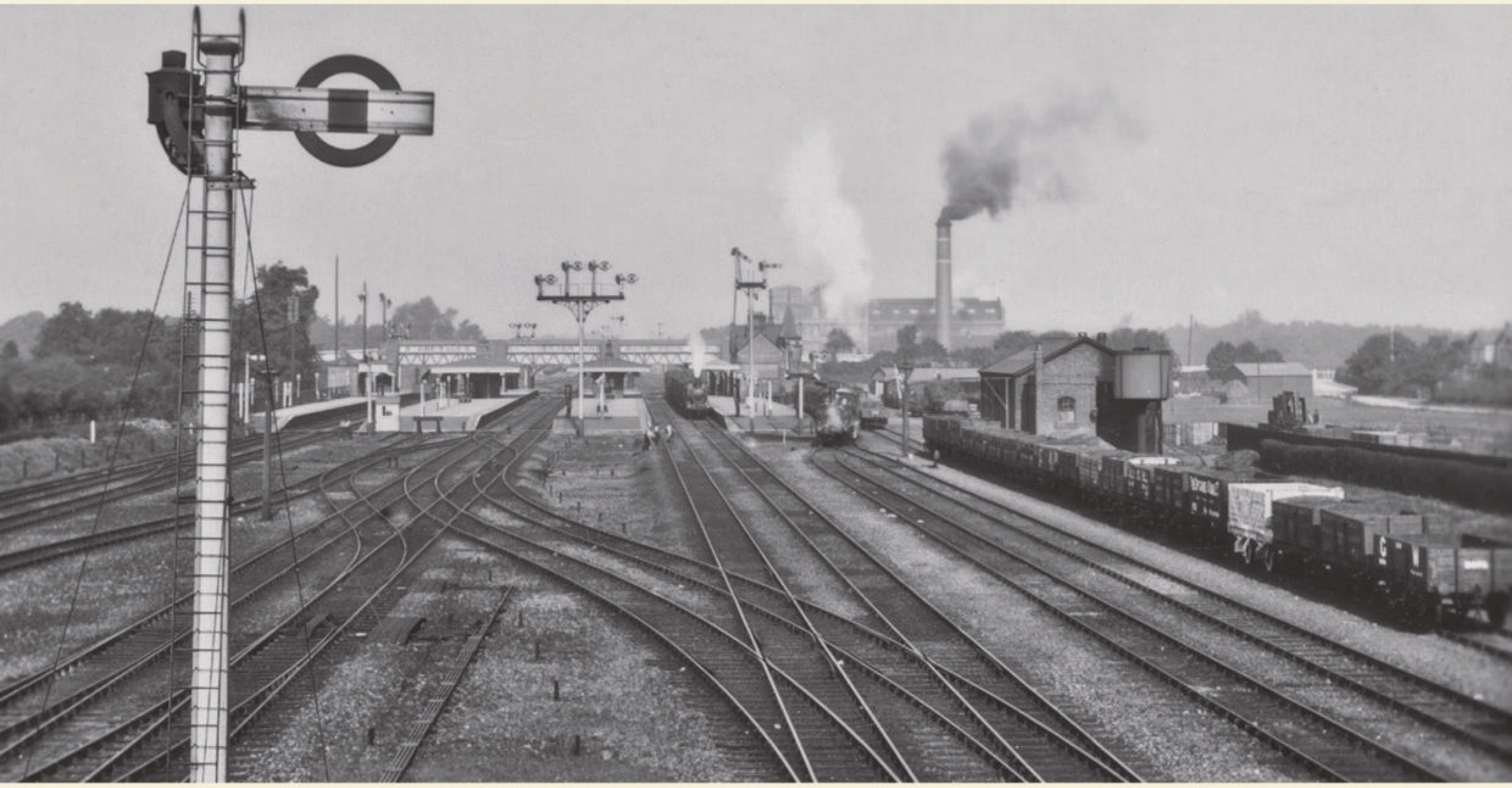
There had been proposals to reach Parkgate by rail since the 1830s. Parkgate had once been a thriving port but had diminished in importance with the gradual silting up of the River Dee and the increasing competition from Liverpool on the River Mersey. The main aim of the Birkenhead Joint was to access the coal reserves at Neston, the reserves being an extension of the Flintshire coalfield under the River Dee.

Construction of the branch from Hooton to Parkgate was undertaken by the renowned Thomas Brassey and William Field, Railway Contractor of Shrewsbury.[1] Work commenced on the four and a half mile long branch in March 1865. Stations were provided at Hadlow Road (Willaston), Neston and Parkgate. Hadlow Road station was so named because there was already a station named Willaston elsewhere in Cheshire. The existing station at Hooton was remodelled and the station provided at Parkgate was viewed as a temporary facility pending further extension of the line.

The branch was built as a single line but to double track standards with road bridges over the railway designed to permit doubling of the line at a later date. The principal engineering challenge was the construction of a 400-yard rock cutting

LMS Stanier 0-4-4T No.6406 has left Parkgate station and is approaching Neston station with a train bound for Birkenhead Woodside on Wednesday 16th August 1933. The locomotive was one of three 0-4-4Ts allocated from new to Birkenhead shed in January 1933, the others being Nos.6405 and 6407. No.6406 was later renumbered 1906 by the LMS and 41906 by British Railways. (E. R. Morten/Roger Carvell Collection)

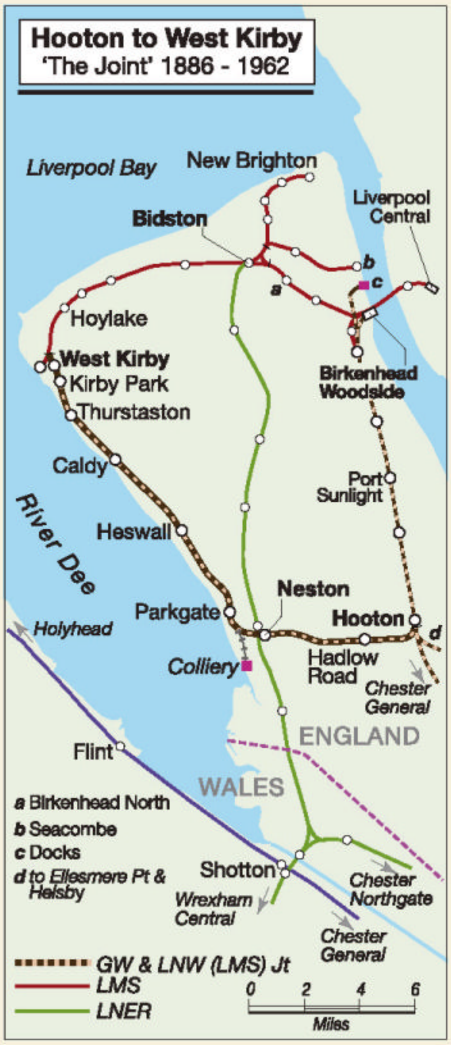




HE HOOTON TO WEST KIRBY

An early twentieth century view of Hooton station. From right to left, the bay platform was Platform 1 with trains departing for Helsby, the up and down fast Platforms 2 and 3, the up and down slow Platforms 4 and 5, and Platforms 6 and 7 for trains to and from the West Kirby branch. The building with the water tower in front is the former Hooton engine shed, a sub-shed of Birkenhead, last used as an engine shed by the GWR in 1916 and afterwards used as a goods shed. (John Alsop Collection)

between the stations at Hadlow Road and Neston. A level crossing was also provided at Hadlow Road. Captain Rich of the Board of Trade inspected the works on 21st September 1866 and sanctioned the opening of the line on the understanding that it would be worked by train staff and with tank engines only. The Hooton to Parkgate branch opened to traffic on 1st October 1866.


Hooton to West Kirby
'The Joint' 1886 - 1962
Liverpool Bay
New Brighton
Bidston
Liverpool Central
a
b
c
Hoylake
West Kirby
Kirby Park
Thurstaston
Birkenhead Woodside
Caldy
Port Sunlight
River Dee
Heswall
Neston
Parkgate
Hooton
d
Holyhead
Colliery
Hadlow Road
Chester General
ENGLAND
Flint
WALES
a Birkenhead North
b Seacombe
c Docks
d to Ellesmere Pt & Helsby
Shotton
Wrexham Central
Chester Northgate
Chester General
GW & LNW (LMS) Jt
LMS
LNER
0
2
4
6
Miles

The next objective for the Birkenhead Joint was to extend the line to West Kirby to service the growing townships of Heswall and West Kirby. West Kirby had established itself as a popular bathing resort by the middle of the nineteenth century. The Birkenhead Corporation had also purchased 45 acres at Thurstaston Common for the recreational benefit of its residents. The independent Seacombe, Hoylake & Deeside Railway had reached West Kirby before the Birkenhead Joint. The SHDR connected West Kirby with Birkenhead and Wallasey, its line having opened on 1st April 1878. The SHDR would later become the Wirral Railway.

The extension from Parkgate to West Kirby was authorised by Act of Parliament in July 1882. Construction of the seven and a half mile extension was undertaken by James Evans, Railway Contractor, of Birmingham and Walsall.[2] The extension was built as a single line and to double track standards as before but doubling of the track never occurred. The total length of the branch from Hooton to West Kirby was twelve miles.

A new station was provided at Parkgate and the site of the existing station was converted into a goods yard. The buildings and platforms of the new station were constructed in wood, being situated on an embankment. Intermediate stations were provided at Heswall and Thurstaston with passing loops at both stations. Thurstaston is notable in history as the home of that ill-fated steamship, the *Titanic.* A 23ft turntable was provided at West Kirby and a connection provided with the SHDR to permit the passage of freight between the two railways.

The extension was opened to traffic on 19th April 1886 and the requirement that only tank engines should be used on the branch was maintained.

Additional stations between Thurstaston and West Kirby were opened later at Kirby Park on 1st October 1894 and at Caldy on 1st May 1909 and constructed chiefly of wood, similar to the station at Parkgate. Facilities for the handling of freight were provided at all stations with the exception of Caldy which could only handle parcels. Signal boxes and passing loops were provided at Hadlow Road, Parkgate, Heswall, Thurstaston and West Kirby.

Lever Brothers of Port Sunlight (now part of the Unilever Group) acquired land for the development of a holiday camp at Thurstaston in 1919 primarily for the enjoyment of its employees. The site was open from Easter through to the end of September and brought much benefit to the railway through additional traffic.

Passenger services on the branch

were at their peak in the 1930s with around twenty trains both ways between Hooton and West Kirby on weekdays supplemented by extra trains between Hooton and Heswall, and up to ten trains either way on Sundays. The outbreak of war in 1939 changed all that. There was an immediate reduction in services from which the branch never recovered. The holiday camp owned by Lever Brothers was closed and anti-aircraft guns installed in lieu. The Royal Air Force opened a training camp at Larton near West Kirby and an ordnance factory was established at Hooton.

There were attempts after the war to improve service provision but these met with little success and Sunday services ended in 1949. With passenger numbers in decline the branch was threatened with closure. The stations at Caldy and Thurstaston stations closed to passenger traffic on 1st February 1954 and Kirby Park on 5th July 1954. The last passenger trains ran on Saturday 15th September 1956 and the remaining stations at West Kirby, Heswall, Parkgate, Neston South and Hadlow Road were closed.

Trains conveying RAF servicemen continued to run until the effective closure of the RAF base in 1957 but freight traffic continued into the 1960s. The last freight trains ran on Saturday 5th May 1962 and the track was lifted in 1964. The track bed was purchased by Cheshire County Council in 1968 and the route was reopened as a leisure facility in 1973 for the benefit of cyclists, ramblers and horse-riders.

Passenger services

Bradshaw's Railway Guide for January 1867 indicates that on weekdays there were four trains from Parkgate to Hooton at 8.05am, 1.20pm, 3.50pm and 7.00pm and four trains from Hooton to Parkgate at 9.25am, 2.15pm, 5.10pm and 7.45pm. The first and last trains of the day were labelled "1 & 2, gov", an indication they were Parliamentary trains required by the Railway Regulation Act 1844. On Sundays there were two trains in either direction, leaving Parkgate at 8.30am and 6.35pm and leaving Hooton at 10.05am and 7.30pm. The four and a half mile journey was timed to take twenty minutes save for the single exception of the 8.05am from Parkgate which was timed at sixteen minutes. By 1870 the number of services had increased to six both ways on weekdays and four on Sundays.[3]

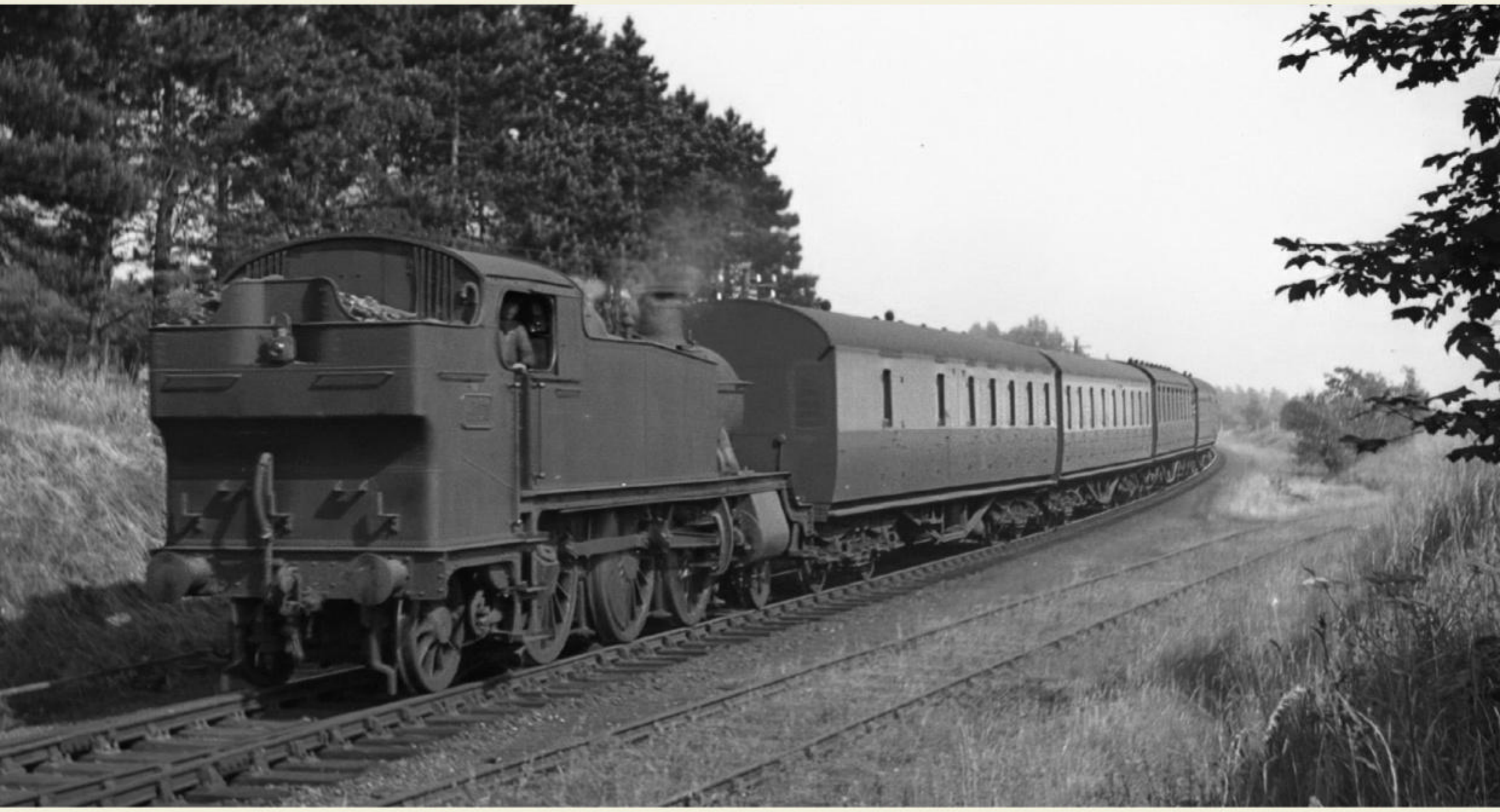
From 1870 onwards there was a steady increase in the number of services, with some services commencing and terminating at Birkenhead Monks Ferry station. With the opening of the Hooton to Helsby branch in 1863 and the increase in the number of services between Birkenhead and Chester, congestion was growing at the Monks Ferry terminal. This station had only two platforms and access was achieved by a single line through a tunnel. A new station with five platforms was opened at Birkenhead Woodside in March 1878. By 1882 there were eleven services both ways on weekdays between Hooton and Parkgate and four on Sundays. The journey time had been reduced to between thirteen and fifteen minutes.[4]

In April 1886 the extension from Parkgate to West Kirby was opened to traffic but the number of services remained the same at eleven each way on weekdays and four on Sundays.[5] The first train of the day from Hooton on weekdays was at 6.45am and the last train on weekdays was at 9.25pm. The first train of the day from West Kirby was at 7.30am on weekdays and the last train on weekdays was at 9.56pm.

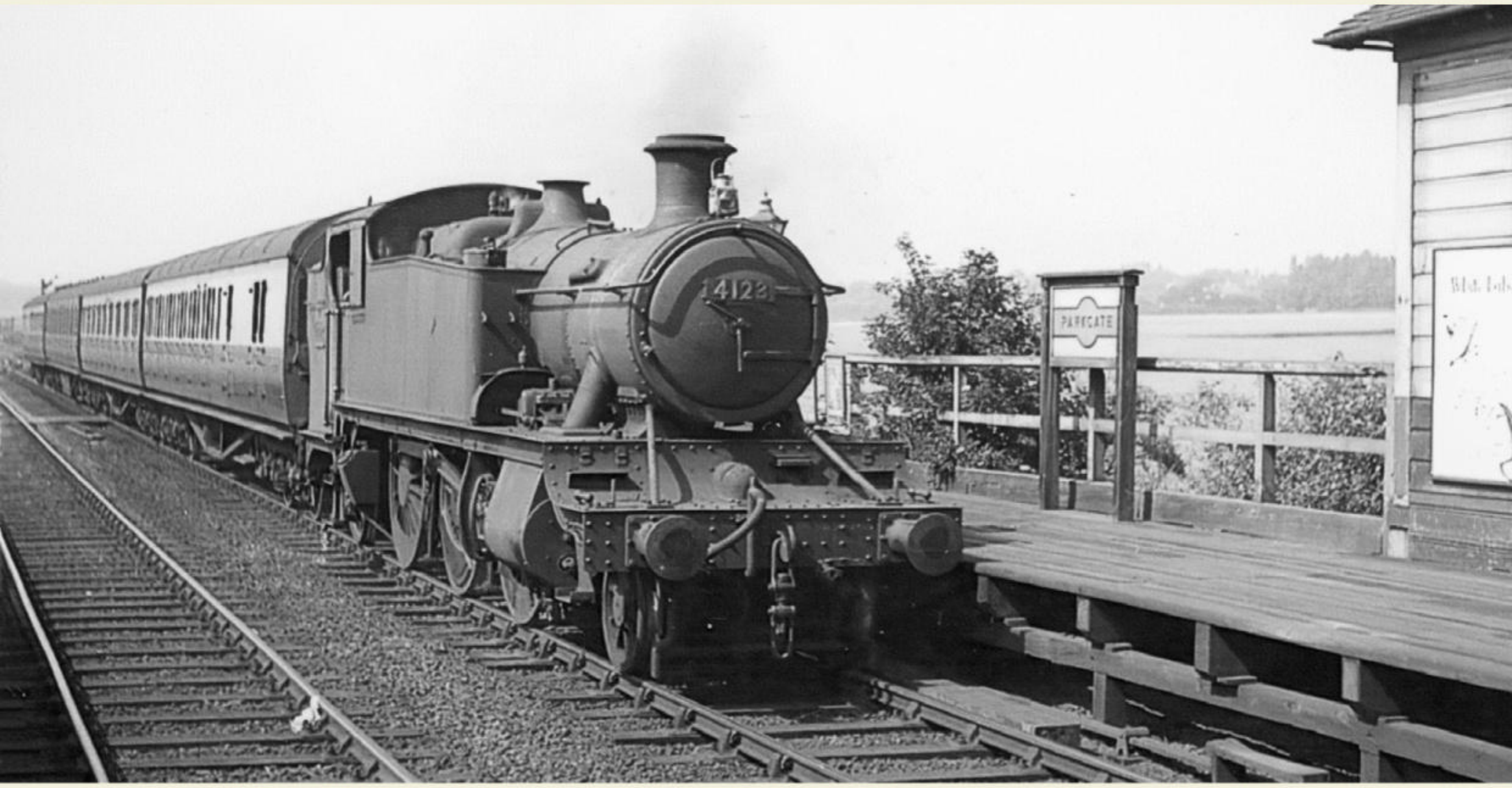
The typical journey time between Hooton and West Kirby was between 25 and 28 minutes for the twelve-mile journey with stops at Hadlow Road, Neston, Parkgate, Heswall and Thurstaston. Roughly half the services started or ended at Birkenhead Woodside with the remainder starting or ending at Hooton.

In the immediate period after 1886, the number of services between Hooton and West Kirby changed little, but by the turn of the century additional services were being provided between Hooton and Heswall.[6] There were now trains departing Hooton for Heswall on Tuesdays at 11.50pm and on Saturdays at 10.30pm. These services originated from Birkenhead Woodside and the trains returned as empty stock. By 1906 the 11.50pm service had become the 11.45pm from Hooton on Tuesdays and Fridays and the 10.30pm service had become the 10.55pm from Hooton on Thursdays and Saturdays. There were also additional services from Hooton to Heswall on Saturdays at 1.39pm and 3.09pm returning at 2.37pm and 4.30pm from Heswall. There was also a daily weekday service from Heswall to Birkenhead Woodside at 9.27am.[7]

The pattern of services was disrupted by the 1914-1918 war. By October 1922



Ex-GWR '51XX' No.4125 is about to pass under the bridge carrying Moorside Lane over the railway as it approaches Parkgate station on the single line from the direction of Neston with a train for West Kirby on Sunday 26th June 1949. The track in the foreground is the stub of the former branch to the Wirral Colliery at Little Neston used as a headshunt for the sidings at Parkgate station. (Neville Fields/Manchester Locomotive Society)

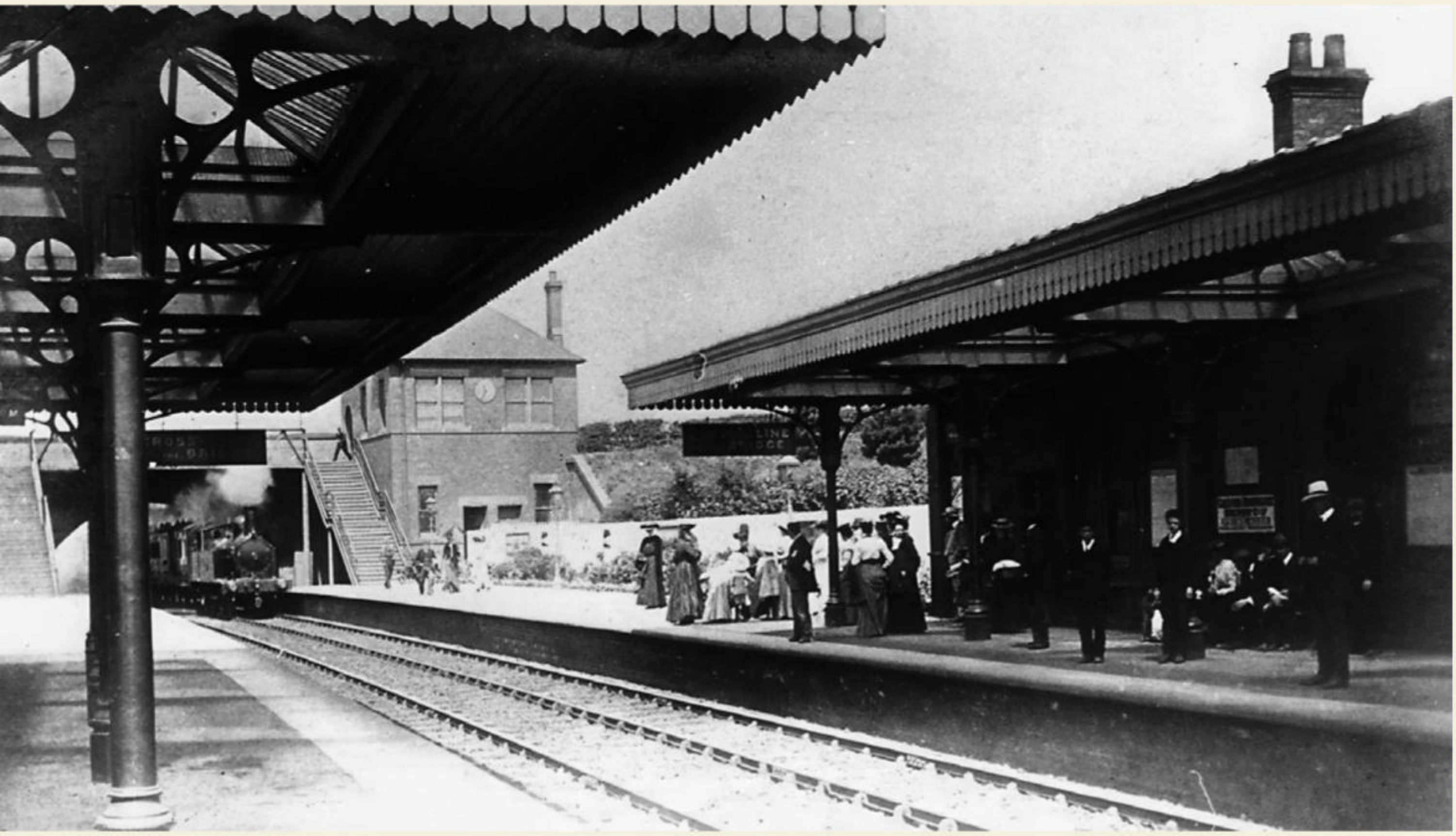


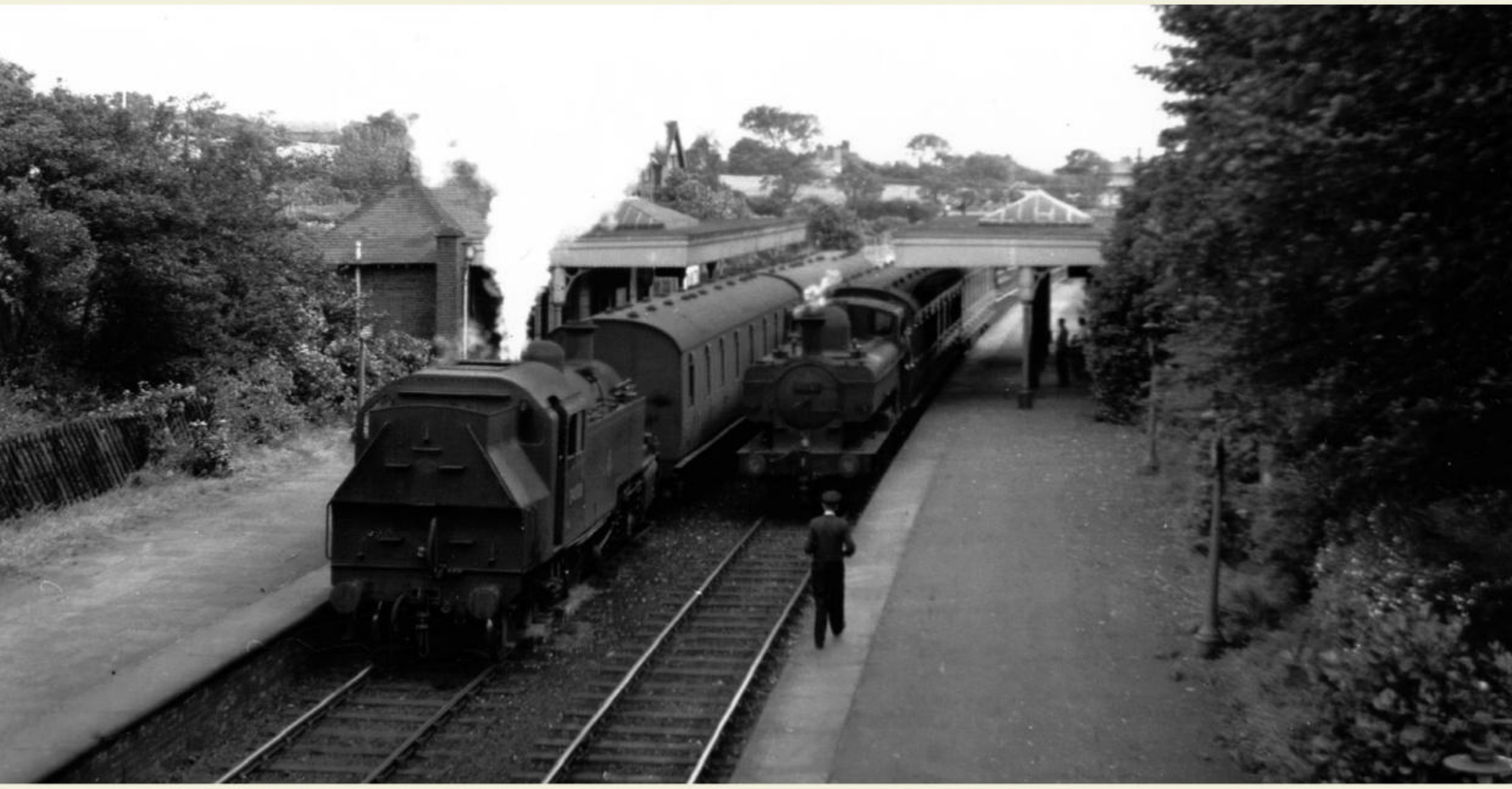
there were fourteen trains from Hooton to West Kirby Monday to Friday and fifteen on Saturdays.[8] Almost all these trains originated at Birkenhead Woodside. Additionally there was the 5.03pm service from Birkenhead Woodside to West Kirby which stopped only at Rock Ferry before Heswall and the 10.55pm Birkenhead Woodside to Heswall. The first train from Hooton to West Kirby was the 6.45am and the last train to West Kirby was the 9.45pm.

There were thirteen trains from West

On Sunday 26th June 1949 ex-GWR '51XX' 2-6-2T No.4123 arrives at Parkgate station with a stopping service for Birkenhead Woodside. Note the wooden construction of the station and the typical LMS design of the station nameboard. New to traffic in January 1938, No.4123 was one of a batch of ten based at Birkenhead for working passenger services on the Wirral between Birkenhead, Chester, Helsby and West Kirby. (Neville Fields/Manchester Locomotive Society)

In this Edwardian view of Heswall station, there is a good number of passengers waiting to board the train to take them onwards towards Hooton and possibly beyond in the direction of Birkenhead, Chester or Helsby. The locomotive at the head of the train has been identified as an LNWR Webb tank engine. The booking office at Heswall was positioned at road level adjacent to the bridge in the picture. There was also a signal box on the up platform which is just out of view. (John Alsop Collection)

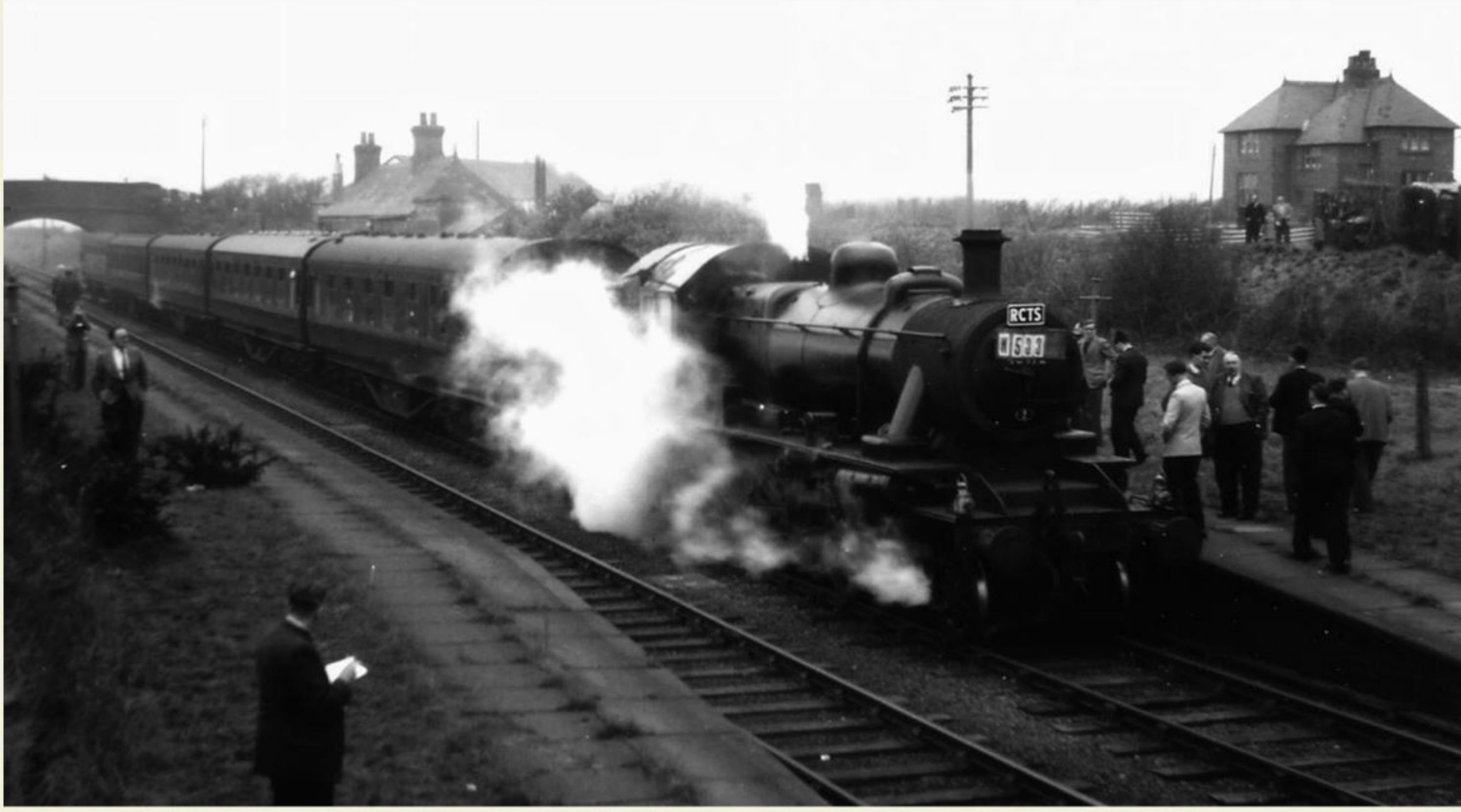




Ex-GWR '57XX' 0-6-0PT No.9651 has arrived at Heswall station with the 3.41pm Hooton to West Kirby train on Monday 30th July 1956. The up platform is occupied by a BR Standard 2MT 2-6-2T No.84000 with the 3.47pm West Kirby to Hooton train. No.9651 was new to traffic in June 1946 and its first allocation was Birkenhead. The Standard 2-6-2T was one of three transferred from Wrexham Rhosddu in July 1956 to work push-pull services on the Wirral, replacing the former GWR '14XX' 0-4-2Ts.
(Kidderminster Railway Museum)

On Saturday 26th March 1960 the Lancashire and North West Branch of the Railway Correspondence & Travel Society organised the 'Cheshire Rail Tour' which included the Hooton to West Kirby branch. The train is seen pausing at Thurstation for photographs. The train was hauled by ex-LMS Ivatt 2MT 2-6-0 No.46472 of Chester LMR Shed. Thurstaston station had closed to passenger traffic on 1st February 1954.
(G. D. Hawkins)

Kirby to Hooton Monday to Friday and fourteen trains on Saturdays. All these trains terminated at Birkenhead Woodside. In addition there was the 8.20am West Kirby to Birkenhead Woodside all stations to Heswall which stopped only at Rock Ferry (to connect with the Mersey Railway) after Heswall and then Woodside, and the 8.42am from Heswall to Birkenhead Woodside all stations to Hooton which stopped only at Rock Ferry after Hooton and then Woodside. The first train from West Kirby was the 6.37am and the last train from West Kirby was the 9.20pm. On



Sundays there were five services each way between Hooton and West Kirby. There were also three workmen's trains, the 7.06am weekday service from Heswall to Hooton, the 5.56pm SX Hooton to Heswall and the 12.49pm SO Hooton to West Kirby.

On 1st October 1923 the London Midland & Scottish Railway introduced a new service linking New Brighton on the former Wirral Railway with London, via the Hooton and West Kirby branch. Residents of Wallasey and North Wirral would no doubt have found this new service advantageous particularly if they were travelling with luggage. Formerly they would have had to travel by other means to catch a train to London from either Birkenhead Woodside or Liverpool Lime Street.

The train would stop at all stations on the Wirral Railway between New Brighton and West Kirby with the exception of Bidston, departing New Brighton at 9.58am, and at all stations between West Kirby and Hooton except Kirby Park, departing West Kirby at 10.28am to connect with the 10.50am Birkenhead Woodside to Crewe departing Hooton at 11.08am. The through carriages from New Brighton would be added to a London-bound train at Crewe, arriving at London Euston at 3.10pm. The return working left Euston at 5.20pm and arrived back at New Brighton at 10.36pm by the same route.[9] This service ran until the outbreak of war in September 1939. The time of the trains varied over the years but by no more than a few minutes. The service did not run on Sundays.

The principal motive power used on the New Brighton to Hooton service were the ex-LNWR 'Coal Tanks' stationed at the Birkenhead Docks engine shed (LMS 6D). John Gahan also mentions the use of ex-Lancashire & Yorkshire Railway 2-4-2T No.6762 on this service until it was transferred to Carnforth in May 1929. Five of the new 2-6-2Ts designed by Henry Fowler were allocated to Birkenhead North in 1930 and these were employed on the New Brighton to Hooton duty until the electrification of the Wirral Railway.[10]

The electrification took effect on 13th March 1938 and after this date the service was maintained by one of the LMS Class 3F 0-6-0Ts outstationed from Birkenhead Mollington Street (LMS 6C) at the London & North Eastern Railway's Bidston shed.

In the 1920s there was also a late train from New Brighton conveying theatre patrons of the Tivoli and Winter Gardens homeward, departing New Brighton at 10.50pm and West Kirby at 11.20pm before arriving at Hooton at 12.00am.[11]

Passenger services on the branch were at their peak in the 1930s. The LMS working timetable for the period 30th April 1934 to 8th July 1934 indicates that on Monday to Friday there were twenty services daily from Hooton to West Kirby and eighteen services from West Kirby to Hooton. There was one service from New Brighton on the former Wirral Railway to Hooton via West Kirby which started from New Brighton. In the reverse direction, there were two trains which started at Hooton and ended at New Brighton. There were also additional services between Hooton and Heswall of which there were three in either direction but the majority of other services started from or ended at Birkenhead Woodside.

The first service train of the day was the 6.13am from Birkenhead Woodside arriving at West Kirby at 7.12am. The first service train of the day from West Kirby was the 6.40am arriving at Birkenhead Woodside at 7.40am. This train was formed of coaching stock which had been left overnight at West Kirby. The last service train of the day from Birkenhead Woodside was the 11.15pm arriving at Heswall at 12.01am. The coaching stock would then be held overnight at Heswall to form the 8.40am Heswall train to Birkenhead Woodside. The last service train of the day from West Kirby was the 10.50pm arriving at Birkenhead Woodside at 11.42pm.

There were two semi-fast services from West Kirby to Birkenhead Woodside in the peak morning rush hour. These were the 8.10am and the 8.40am from West Kirby, reaching Birkenhead Woodside at 8.57am and 9.27am respectively, a journey time of 47 minutes. The 8.10am was held at Thurstaston for four minutes to allow the 7.38am Rock Ferry to West Kirby train to pass, and did not stop at Hooton. After Hooton, both the 8.10am and the 8.40am trains stopped only at Rock Ferry to enable connection with the Mersey Railway and at Birkenhead Woodside to connect with the Mersey Ferry.

Saturday services followed a similar frequency and pattern subject to the withdrawal of certain peak hour services and the introduction of Saturday only off-peak services. On Saturdays there were 22 services daily from Hooton to West Kirby and nineteen from West Kirby to Hooton, including the trains to and from New Brighton noted above. These were supplemented by services between Hooton and Heswall of which there were two in either direction. Most of the other services started from or ended at Birkenhead Woodside.

The more interesting section of the 1934 working timetable is that which deals with Sunday services on the branch. The timetable indicates that Sunday services on the branch were integrated with those on the former Wirral Railway (see accompanying tables). For six days of the week and despite the interest of the LMS in both, passenger services on the former Wirral Railway and the Birkenhead Joint were operated separately apart from the New Brighton to Hooton service.

On Sundays, however, services were combined and gave rise to the term the Birkenhead Circular where a train could depart Birkenhead Woodside and travel 26 miles to Birkenhead Park station, the two stations being just over a mile apart. It would be possible to walk the distance between these two stations in a little over twenty minutes whereas the train journey would take approximately an hour and a half. Only rail enthusiasts would be interested in buying a ticket for the whole journey.

It would appear that this was a relatively new initiative as the details are not included in the LMS Diagram of

Table 1: Passenger Services between Hooton and West Kirby Sundays 6th May 1934 to 8th July 1934

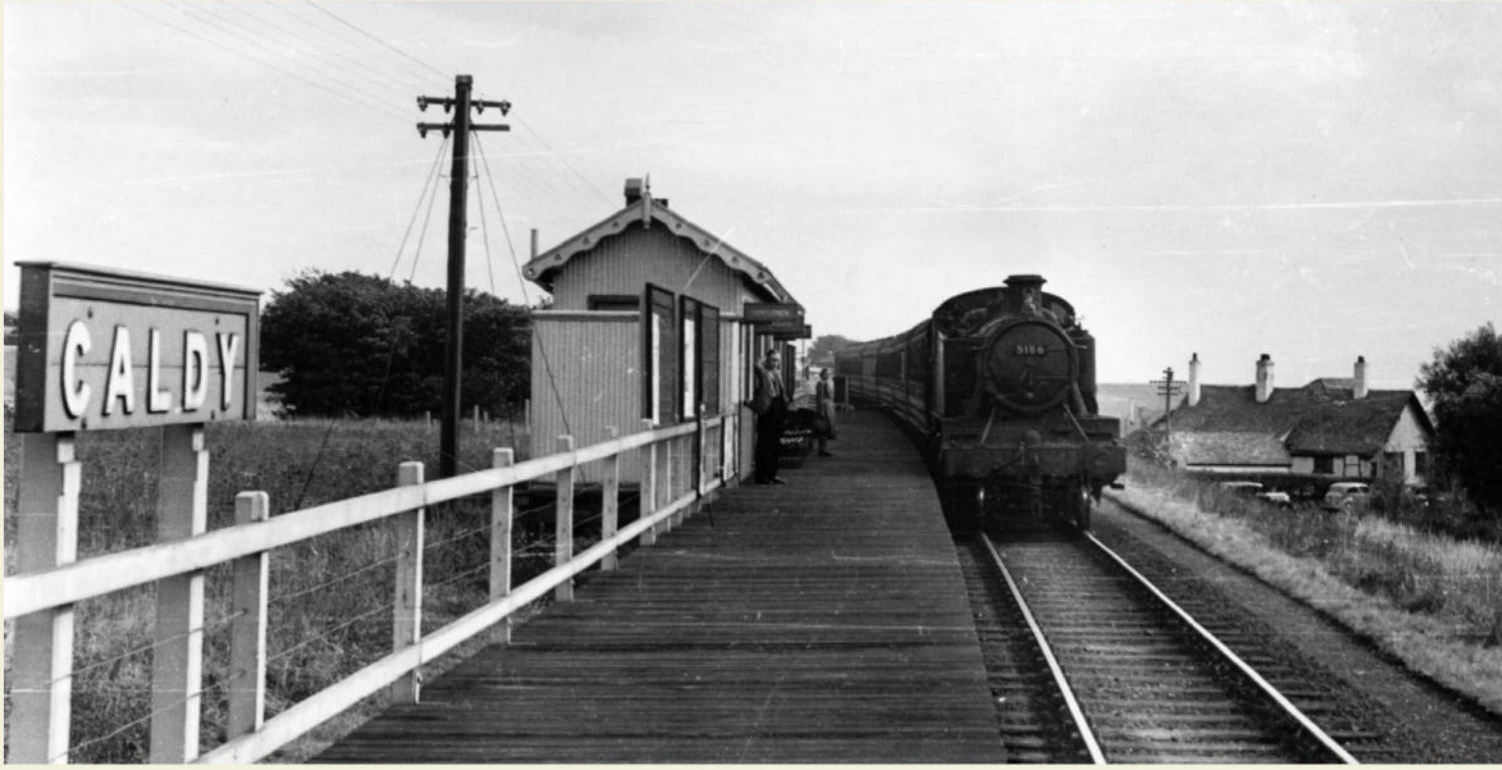
Origin		Departs Hooton	Departs West Kirby	Destination	
Birkenhead Woodside	8.13am	8.38am	9.18am	Seacombe and Egremont	9.42am
Birkenhead Woodside	11.00am	11.26am		West Kirby	11.58am
Birkenhead Woodside	12.13pm	12.41pm	1.26pm	Birkenhead Park	1.51pm
Birkenhead Woodside	2.27pm	2.50pm	3.30pm	Seacombe and Egremont	3.53pm
Heswall	2.56pm		3.13pm	Birkenhead Park	3.40pm
Birkenhead Woodside	3.13pm	3.42pm		West Kirby	4.14pm
Birkenhead Woodside	5.45pm	6.14pm	6.54pm	Seacombe and Egremont	7.21pm
Birkenhead Woodside	6.13pm	6.42pm		Thurstaston	7.05pm
Birkenhead Woodside	7.18pm	7.47pm	8.25pm	Birkenhead Park	8.50pm
Birkenhead Woodside	8.13pm	8.40pm	9.18pm	Seacombe and Egremont	9.44pm

The stations at Birkenhead Park and Seacombe and Egremont are on the former Wirral Railway, and the stations at Heswall and Thurstaston are on the Birkenhead Joint branch line between Hooton and West Kirby.

Table 2: Passenger Services between West Kirby and Hooton Sundays 6th May 1934 to 8th July 1934

Origin		Departs Hooton	Departs West Kirby	Destination	
West Kirby		9.22am	9.57am	Birkenhead Woodside	10.19am
West Kirby		12.10pm	12.45pm	Birkenhead Woodside	1.07pm
New Brighton	1.18pm	1.55pm	2.30pm	Birkenhead Woodside	2.52pm
Seacombe and Egremont	2.08pm	2.37pm		Heswall	2.49pm
Seacombe and Egremont	3.08pm	3.45pm	4.25pm	Birkenhead Woodside	4.47pm
West Kirby		4.25pm	5.10pm	Birkenhead Woodside	5.32pm
Seacombe and Egremont	6.27pm	7.00pm	7.35pm	Birkenhead Woodside	7.57pm
Thurstaston	8.00pm		8.30pm	Birkenhead Woodside	8.52pm
Seacombe and Egremont	8.08pm	8.42pm	9.22pm	Birkenhead Woodside	9.43pm
Seacombe and Egremont	8.58pm	9.28pm	10.02pm	Birkenhead Woodside	10.24pm

The stations at New Brighton and Seacombe and Egremont are on the former Wirral Railway, and the stations at Heswall and Thurstaston are on the Birkenhead Joint branch line between Hooton and West Kirby.



Carriage Working of September 1933.

There were eight services from Birkenhead Woodside to West Kirby and beyond, one from Birkenhead Woodside to Thurstaston and one from Heswall to Birkenhead Park. In the reverse direction there were eight services from West Kirby and one from Thurstaston to Birkenhead Woodside, and one from Seacombe and Egremont to Heswall. Trains would stop at all stations between Hooton and West Kirby except Kirby Park. *(See Tables on previous page).*

The frequency of weekday services between Hooton and West Kirby in either direction remained more or less the same over the next five years save for a slight reduction in the number of Sunday services outside the summer season. In March 1938, following electrification of most of the former Wirral Railway, Sunday services between Birkenhead Woodside and destinations on the Wirral Railway ceased.

Then in September 1939, on the outbreak of the Second World War, an emergency timetable was introduced.[12] The number of weekday services between Hooton and West Kirby was halved and the number of services on Sundays was reduced from ten to two between Hooton to West Kirby and from nine to two between West Kirby and Hooton. The weekday steam-hauled service originating at New Brighton bound for London Euston was also discontinued. A number of services was restored in the months which followed but the level of service remained below that of the 1930s and the number of Sunday services was limited to three in both directions.

In October 1945 there were thirteen services either way between Hooton and West Kirby on weekdays and three on Sundays.[13] There were also a number of workmen's trains enabling workers to travel to and from the industrial establishments situated on the Mersey side of the Wirral peninsula. The Saturday only workmen's train departed Hooton at 11.55am to West Kirby, stopping at all stations except Caldy. This service remained in the timetable until 1949. It was fed (i) by the 11.25am Saturdays only workmen's train from Helsby CLC to Birkenhead Woodside arriving Hooton at 11.50am stopping at Ince and Elton, Ellesmere Port and Little Sutton and (ii) the joint passenger 11.25am Saturdays only Rock Ferry to Helsby service stopping at Bebington and New Ferry, Port Sunlight, Spital and Bromborough, arriving Hooton at 11.41am.

Ex-GWR '51XX' 2-6-2T No.5186 pauses at Caldy station to set down and pick up passengers before proceeding forward to Kirby Park and its final destination West Kirby in 1953. No.5186 was an 84K Chester engine at the time. Caldy station was built on an embankment and both the platform and station building were constructed of wood. The station closed to traffic on 1st February 1954.
(Eric Power Archive)

On Sundays there was an empty stock working from Hooton at 5.32am arriving at West Kirby at 6.00am. A workmen's train departed West Kirby at 6.20am and called at all stations except Kirby Park and Caldy, arriving at Hooton 6.53am before proceeding to Birkenhead Woodside. After Hooton the train stopped only at Rock Ferry and Birkenhead Woodside. At Hooton it connected with the 7.10am workmen's train all stations to Helsby. A return service left Hooton at 4.53pm, arriving at West Kirby at 5.28pm, stopping at all stations except Caldy and Kirby Park. There was a connecting workmen's train, the 4.17pm from Stanlow and Thornton to Rock Ferry stopping at Ellesmere Port and Little Sutton, arriving at Hooton at 4.33pm. The empty stock departed West Kirby at 5.40pm. This service was cut back to Heswall in 1946 and the Sunday service had ceased by 1947.[14]

There were various attempts in the immediate aftermath of World War II to stimulate patronage but these were short-lived and the fortunes of the branch took a downward turn with the gradual loss of services. The branch faced serious competition from increasing levels of car ownership and improved bus services, and some of the stations on the branch were not exactly conveniently located for use by the local population.

Sunday services were withdrawn in 1947 only to be re-introduced in the 1949 summer timetable with five trains in both directions but were withdrawn permanently thereafter.[15] The number of services on the branch was reduced in the winter period and services starting and finishing at Heswall disappeared from the timetable altogether.

The summer of 1951 saw the introduction of a motor train on the branch, using former Great Western motive power and autotrailer, on an early morning service from West Kirby. The use of motor trains was extended in 1954 with the provision of an afternoon service in both directions.[16]

Caldy and Thurstaston stations closed to passenger traffic on 1st February 1954. Kirby Park station closed to general passenger traffic on 5th July 1954 but trains continued to call at the station to convey schoolchildren to and from the Caldy Grange Grammar School during term time. The trains involved were the 8.09am from Hooton stopping at Kirby Park at 8.40am, arriving at West Kirby at 8.42am, and the 4.25pm train from West Kirby stopping at Kirby Park at 4.27pm and arriving at Hooton at 4.55pm.

Passenger services in the last twelve months of operation were roughly half those of the 1930s. The 1956 summer timetable indicated that there were twelve trains in either direction on weekdays.[17] Despite spirited opposition, the last passenger trains ran on Saturday 15th September 1956 and the remaining stations closed on 17th September 1956.

Normally the last train to leave West Kirby in the evening would have been the 8.28pm to Hooton and the last train to arrive at West Kirby would have been the 9.14pm from Hooton, arriving at 9.48pm. The stock would be left over the weekend to form the first train of the day on Monday from West Kirby – but there was no point in leaving the empty stock at West Kirby for a service on Monday 17th September that would not run. The 9.55pm light engine to Mollington Street became the last regular train to leave West Kirby headed by ex-GWR '51XX' 2-6-2T No.4122.

Although the branch was officially closed to passenger traffic, the line continued to be used by passenger trains. Trains conveying RAF servicemen continued to run until the closure of the RAF base in West Kirby.

On 11th July 1957 the Royal Train traversed the branch on the occasion of a Royal visit to the Wirral. The train was hauled by ex-LMS 2-6-4Ts Fowler No.42375 and Stanier No.42594. Then, on 26th March 1960, The Lancashire and North West Branch of the Railway Correspondence & Travel Society organised 'The Cheshire Rail-tour' headed by Chester-based Ivatt 2-6-0 No.46472 which paused at Thurstaston for photographs.

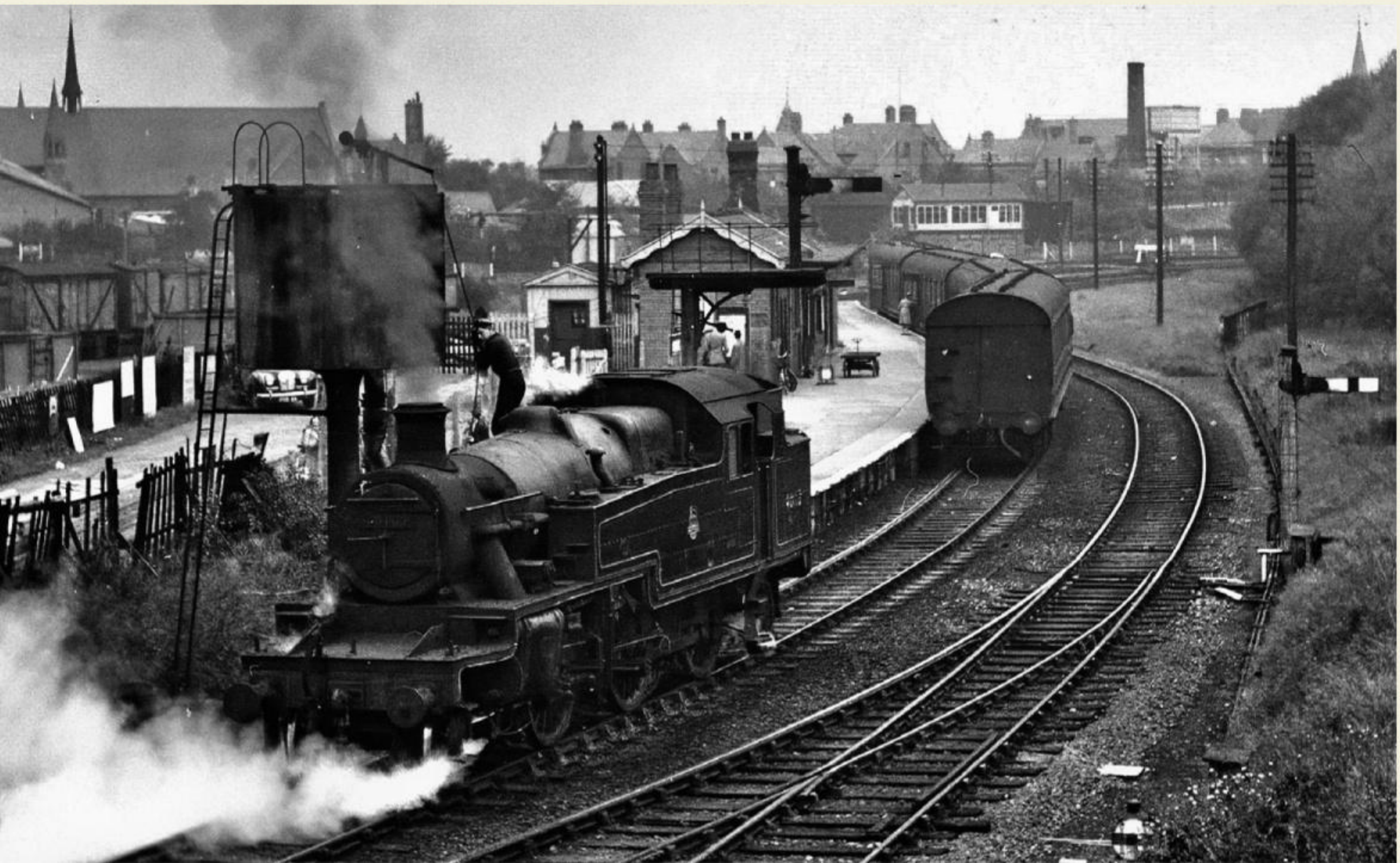
During 1961 the branch was used for driver training prior to the introduction of diesel multiple units on the Birkenhead to Chester line and the Hooton to Helsby branch.

Exceptionally, on 26th April 1963, the Joint station at West Kirby was used by West Kirby Grammar School for Girls for a trip to Chester Cathedral where a special service was held to celebrate the golden jubilee of the school. The train was hauled to Chester Northgate by ex-LMS Fairburn 2-6-4Ts Nos.42213 and 42236, travelling via the former GCR and LNE mid-Wirral line from Bidston.[18]

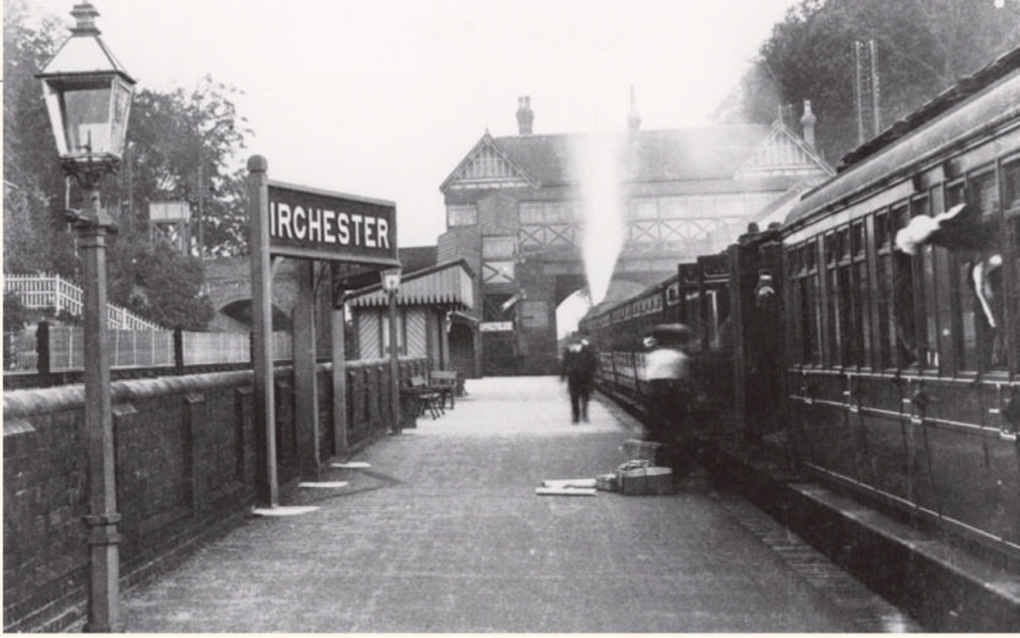
(to be continued)

References

1. *Industrial Railway Society Handbook of Railway Contractors*
2. *Industrial Railway Society Handbook of Railway Contractors*
3. GWR working timetable January 1870
4. LNWR working timetable June 1882
5. LNWR public timetable November 1886
6. GWR working timetable June 1900
7. LNWR working timetable February 1906
8. LNWR working timetable October 2nd 1922 ufn
9. These times are taken from *Bradshaw's Railway Guide* July 1927
10. W. H. Jones/Eric Power Archive
11. These times are taken from *Bradshaw's Railway Guide* July 1927
12. GWR timetable 'Suspension and Alteration of Passenger Trains" September 25th 1939 ufn
13. GWR working timetable October 1st 1945 ufn
14. See the *Wirral Railway Circle Journal* No.85 Autumn 1999 for further information
15. BR LMR working timetable 23rd May 1949 to 25th September 1949
16. For further information see the Manchester Locomotive Society magazine the *Mancunian* of November 2020 and January 2021
17. BR LMR working timetable Monday 11th June to Sunday 16th September 1956
18. Information supplied by Chris Magner



Ex-LMS Stanier 2-6-2T No.40102 takes water at the former West Kirby Joint station having worked the 4.56pm Hooton to West Kirby train on the last day of passenger services. Its next duty would be to work the 5.59pm service from West Kirby to Birkenhead Woodside. The locomotive was a long-time resident of Birkenhead shed until its withdrawal in October 1962. The goods yard behind the station buildings is well stocked with mineral wagons and goods vans. The signal box in the far background controlled rail access to both stations at West Kirby.
(R. Gee/Eddie Johnson Collection)



A lovely view from yesteryear. Note the splendid hat of the lady leaning out of the carriage; also the stairs appear to be covered. (David Tee Collection)

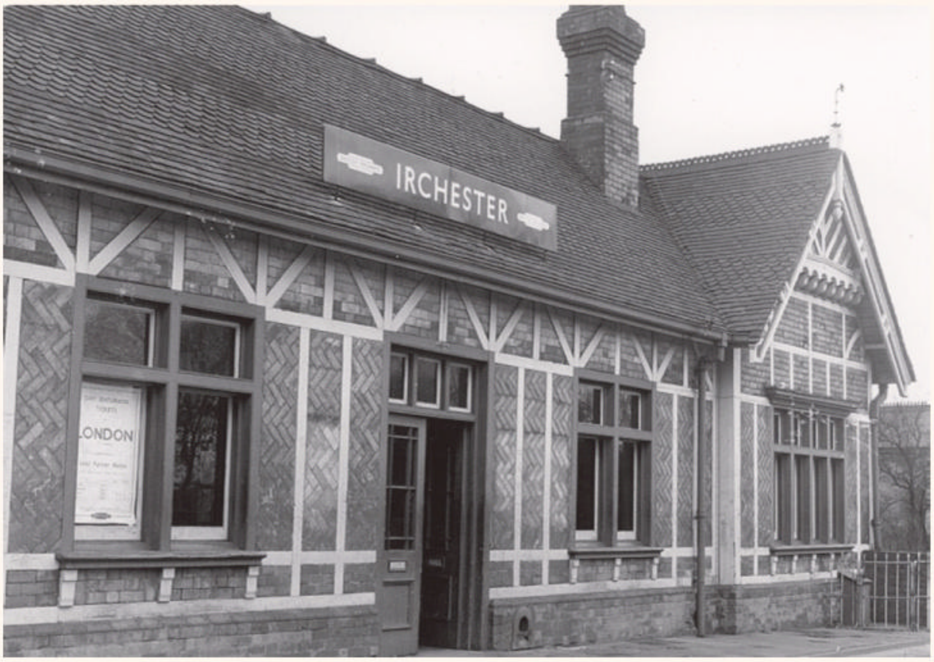
IRCHESTER

BY PETER BUTLER

When the Midland Railway (MR) launched its own plans to come south and to reach London, its first stage was to be the opening of a new line from Wigston to Hitchin, which opened in 1857 and, as is well known, was the nearest it got to London on its own line. That was to come later in 1868 with the opening of a new line from Bedford to St. Pancras.

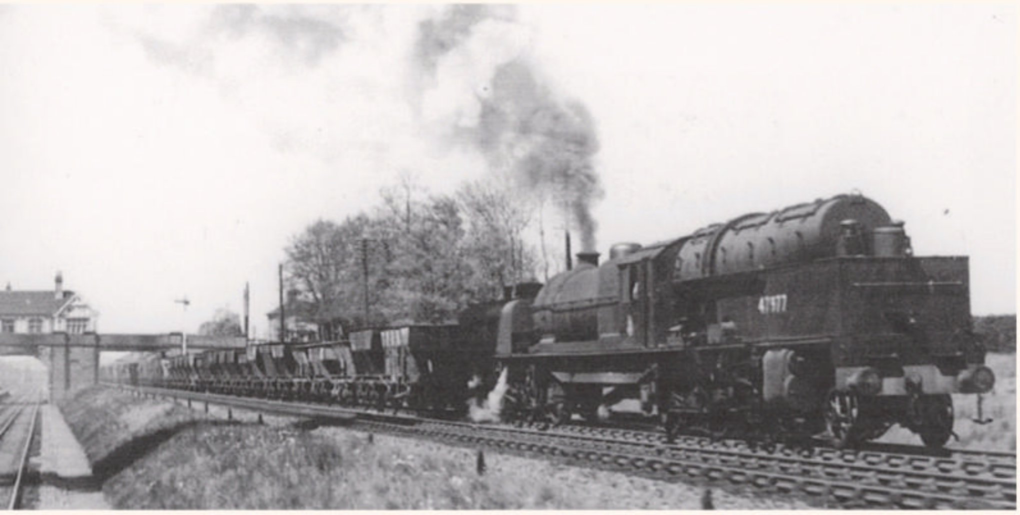
The first attempt brought about the opening of a station at Irchester which, at the time of opening, was just called Irchester. Later it was renamed Irchester for Higham Ferrers. At the time of opening there was a well-used footpath from the village to the halt at Ditchford on the London and Birmingham (L&B) branch from Blisworth to Peterborough.

There was little here other than the famous treacle mines, but it meant that villagers could travel to Thrapston, Peterborough, Northampton and even London, though I doubt if many travelled that far. The footpath must have been so well used that the MR built a footbridge over its line. This had to be extended when the goods lines, which were slowly being brought into use, opened. In November 1881 the station was renamed Irchester for Higham Ferrers. Was this to compete with the L&B station on the Peterborough branch which had named its first station Higham Ferrers? Perhaps because Higham was seen as being a more important place due to its connections with the Duchy of Lancaster? The King, as Duchy of Lancasrer, still owns considerable land holding in the area. Perhaps this why both the L&B and the Midland included the name in their station nameboards? The station became just Irchester when the Higham Branch opened for passenger services in 1894.



The frontge of the station with the nameboard now mounted on the roof. It would be interesting to know how much the day excursion fare to London was... (Barry Taylor Collection)

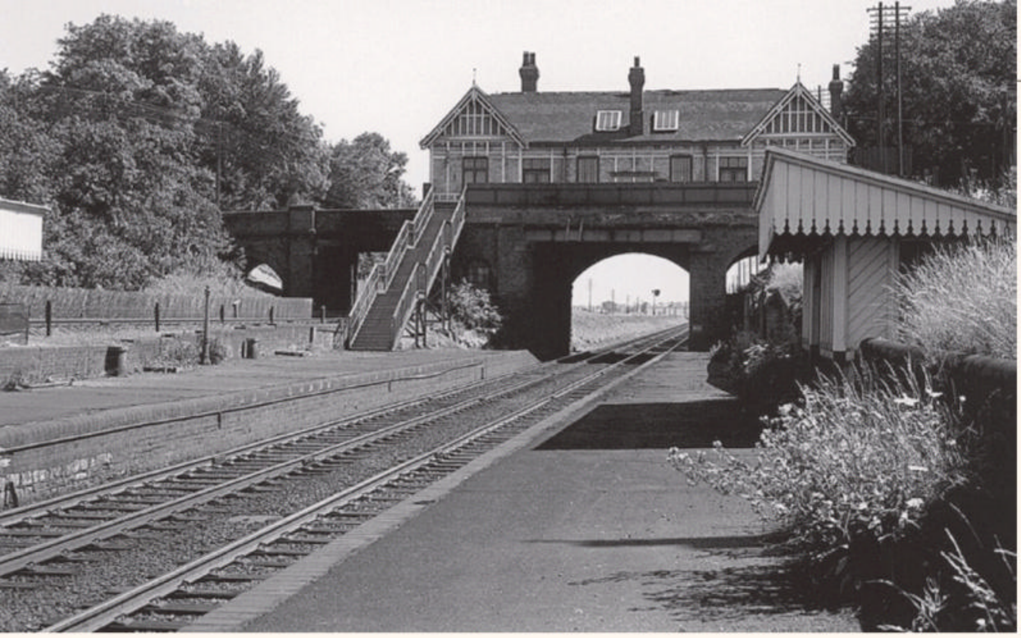
LMS Beyer Garrett No.47977 with an up goods passing Irchester. Note the station on the bridge, the different levels of the track and the tall down home signal mounted on the up side of the track, presumably for sighting purposes. (Jim Pope Collection)



The years 1882/3 were to see some dramatic changes to the the railway scene in the station area. The new goods lines meant that the original station was in the way and a new station needed to be built. So the MR built a new station on the road leading from Irchester to Rushden, which is the one everybody remembers. To the best of my knowledge I have never seen a photograph of the first station, only an official map of the area. Together with the new station, a new goods yard and shed were built. The design of the station was quite unusual, totally out of keeping with the other small stations in the area. Many years later, the goods shed was to take on a new lease of life, of which more anon. The station, being at road level, meant that two long flights of open stairs were required to reach the platforms. No lifts in those days!

With the opening of the goods line and the new station came a change to the signalling in the area. The first box was called Irchester Station because it was very close to the north end of the up platform. For most of the distance between Wellingborough and Bedford the new goods lines are at a different elevation to the original 1857 lines. Only at two places are the two sets of line parallel with one another. The first is just south of Irchester station and the other at Sharnbrook. Here double crossovers were installed. The box controlling the Irchester one was name Irchester South and the original box at the station was renamed Irchester North.

Irchester Junction came with the opening of the branch to goods in 1893. Interestingly,



A more modern view of the station. There is now no roof over the stairs. (Barry Taylor Collection)

RAILWAY STATION

the new lines were designated as goods apart from the section between Wellingborough and Irchester Junction which became slow lines with opening of the passenger services.

The coming of the railways to this part of the world had led to the discovery of new large deposits of iron ore needed to supply the foundries that were being built in the area. Studies by my old friend Geoffrey Webb, in his researches on the history of the early days of the MR in the area, had led him to discover that a small quarry had opened with a connection to the MR, just north of the first station. More research, together with the late Eric Tonks, brought to light more details.

An update on the state of affairs at the time of the widening can be seen from a report to the Midland shareholders dated 18th July–9th August 1883. "The earthworks and tunnel are finished. The greater part of the work at Irchester station is done and the ballasting and laying of the permanent way are making good progress…"

The building work at this period and in 1857 led to the arrival of hundreds of navvies and their families into the area, many of whom would have found lodgings in the district and who had also established a camp in the village. These men were noted, amongst other things, for their ferocious appetites. This led to an Irchester man, Edward Parsons, starting a pie and sausage business. His products proved popular with navvies and enabled the business to proper. The firm was to continue for over 140 years before the family sold the business to Bowyers. In the village today, in regular use, is Parsons Hall given to the village in 1952.

Now at time of the railway appearing on the scene, the station was said to be in the hamlet of Knuston, situated between Irchester and Rushden. It only consisted of a couple of cottages, a farm and Knuston Hall. The Hall is mentioned in the Domesday Book (c1086) and the following years was to see it owned and occupied by several families until in 1865 the owner was Robert Wigram Arkwright, the great grandson of Richard Arkwright, the inventor of the 'Spinning Jenny'.

There is no doubt that the owners of the Hall had lost part of their estate to the MR in 1857 and more was lost with the widening of the route. Doubtless this meant the Arkwrights had some influence on the MR since we know they had their own siding at the station. With many fireplaces in the Hall, one can imagine a wagonload of coal being brought to their own siding, and, as it happened, the entrance to the drive way to the Hall was almost opposite the entrance to the goods yard.

Another interesting fact is that between 1850 and 1885, Robert Arkwright was Master of the Oakley Hunt. Was he able to hire a horsebox that could be attached to a train for the journey between the two stations? The last family to own and live at the Hall was that of C. A. K. Green, a Rushden boot and shoe manufacturer. After his death, his wife decided to sell the Hall. It was purchased by Northamptonshire County Council in 1947 who used it to start an Adult Education Centre. Over the years it became known for its many and varied courses. In recent years the writer has had the pleasure of giving a number talks there. One of the last talks I was able to give before Covid closed everything down was 'St. Pancras and his Station'. Who was this saint and why was a station named after him? A fitting tribute to the Midland.

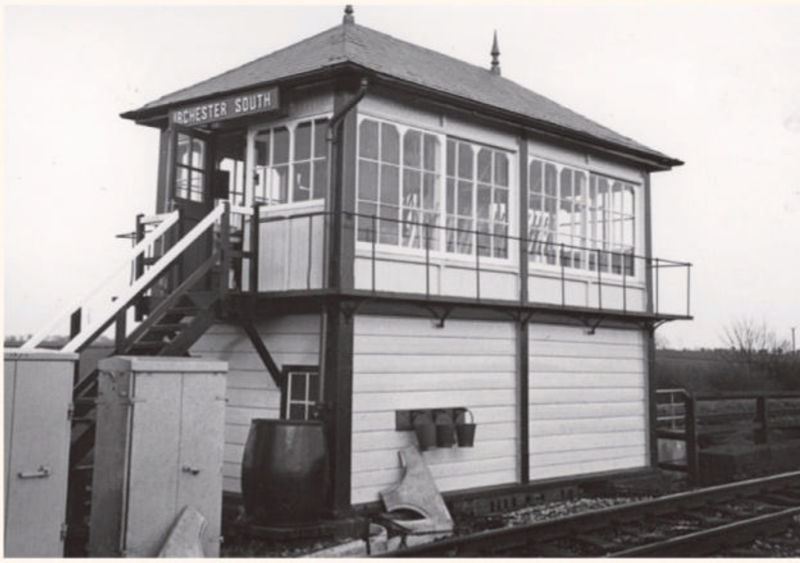
Returning to the goods shed, in the early 1980s, a small group of enthusiasts had restored/worked on a full-sized locomotive. With the experience from this work, they looked for a smaller locomotive they could restore and at a location nearer to their homes in Northamptonshire. The outcome was the formation of 'The Northamptonshire Locomotive Group', with its headquarters in the goods shed at Irchester in 1982. The object of their devotions was Peckett No.85, which had worked in the local quarries. Subsequently they had to leave the goods shed, but have gone on to form 'The Irchester Narrow Gauge Trust' and to be able to build and develop a museum in the nearby worked-out quarry, which has now become 'Irchester Country Park'.

British Railways was already beginning to close some of the smaller stations – remember this is pre-Beeching. Closure for Irchester for passenger services came in March 1960. For reasons unknown, the large station name that was fixed over the booking hall entrance was moved and refixed on the roof, sometime in the early 1950s. Perhaps, a variation of always painting something shortly before closure?

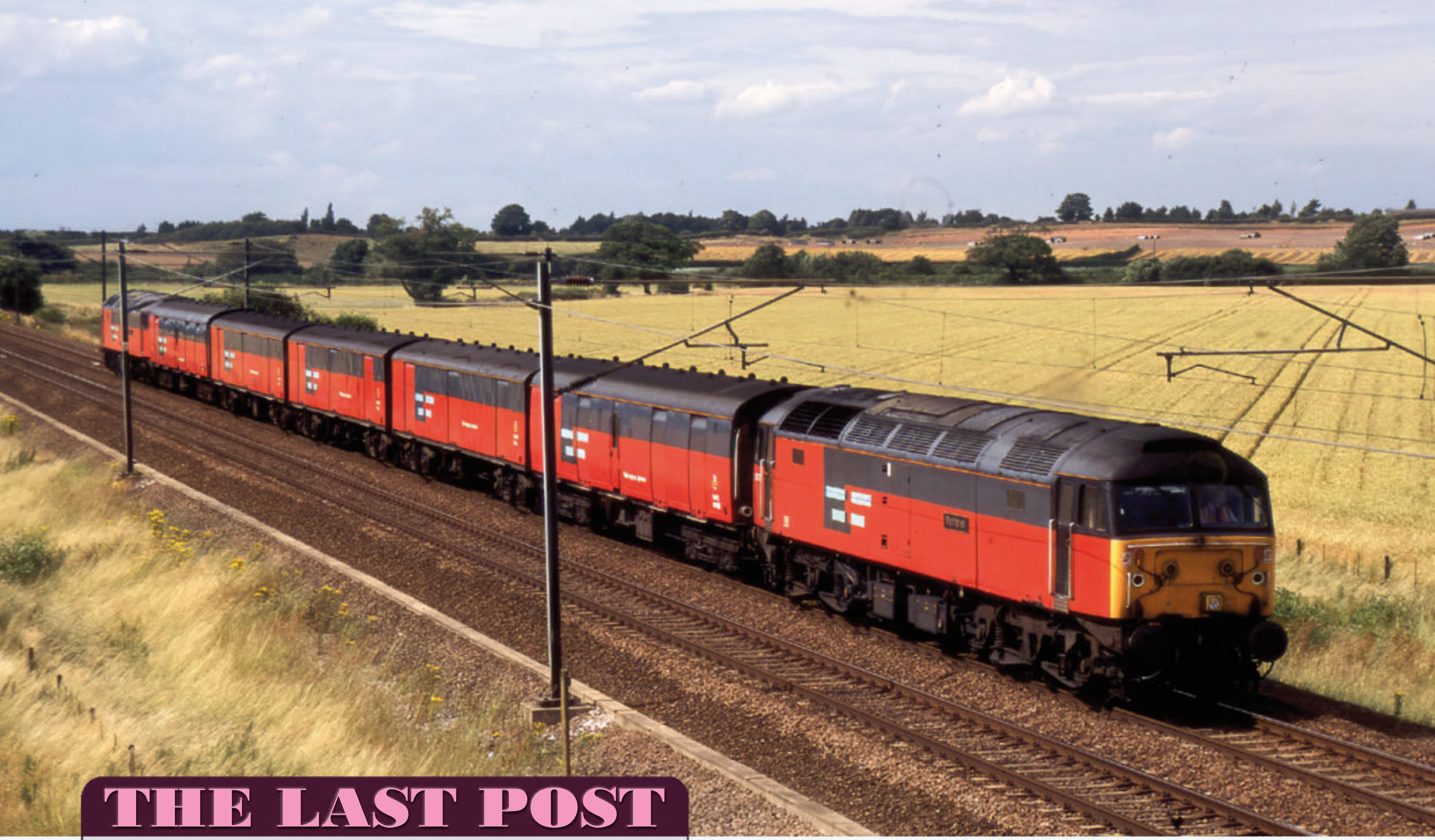
Today, amazingly, all the buildings, apart from the station, are still *in situ* and in use.

RAILWAYS
DENNIS
JJH 217

There were stables at the station but this photograph from c1953/4 shows that a motor vehicle has replaced the horse and dray. (John Percival)



Irchester South signal box which closed on 5th December 1987. (Author)

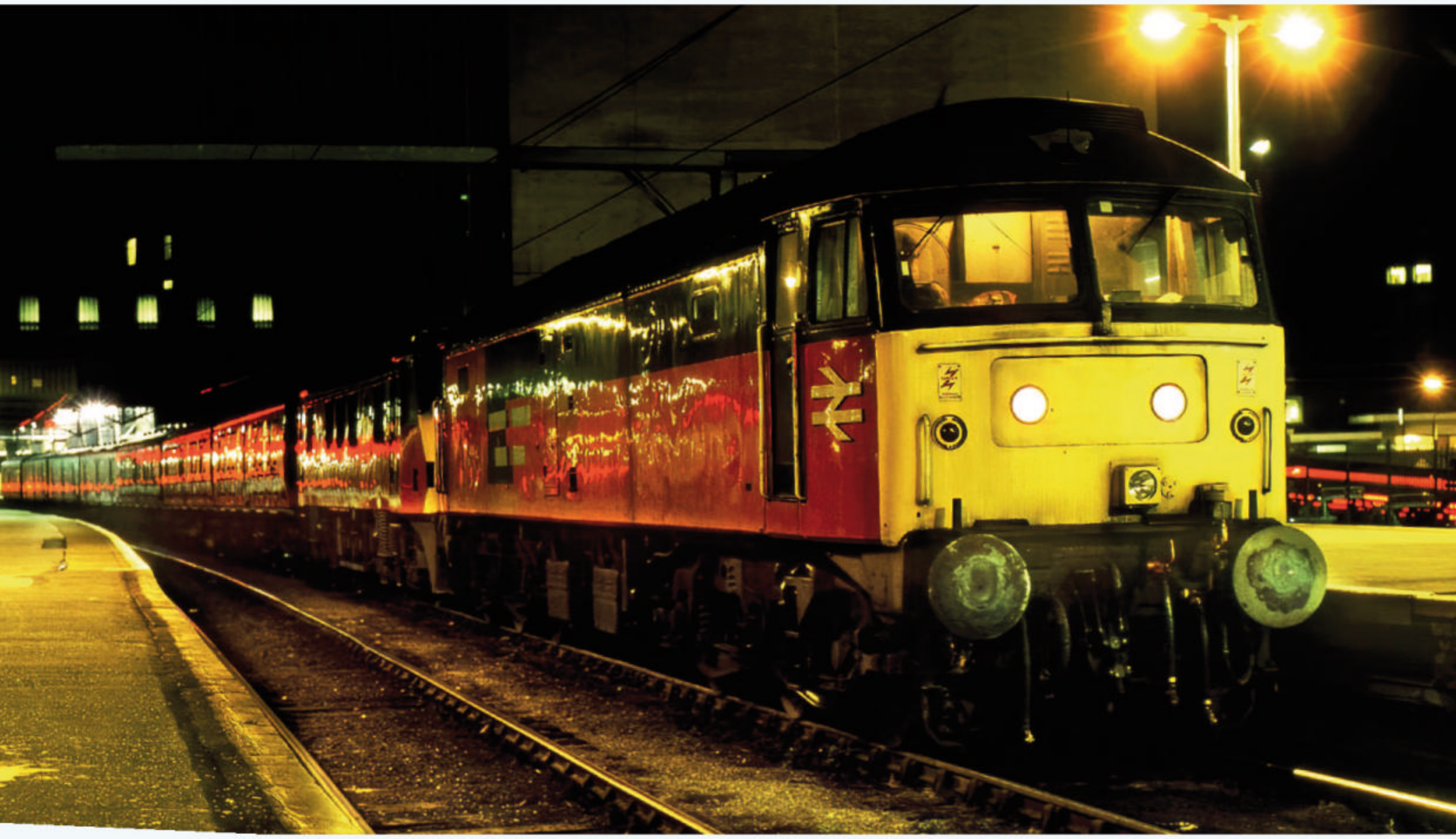


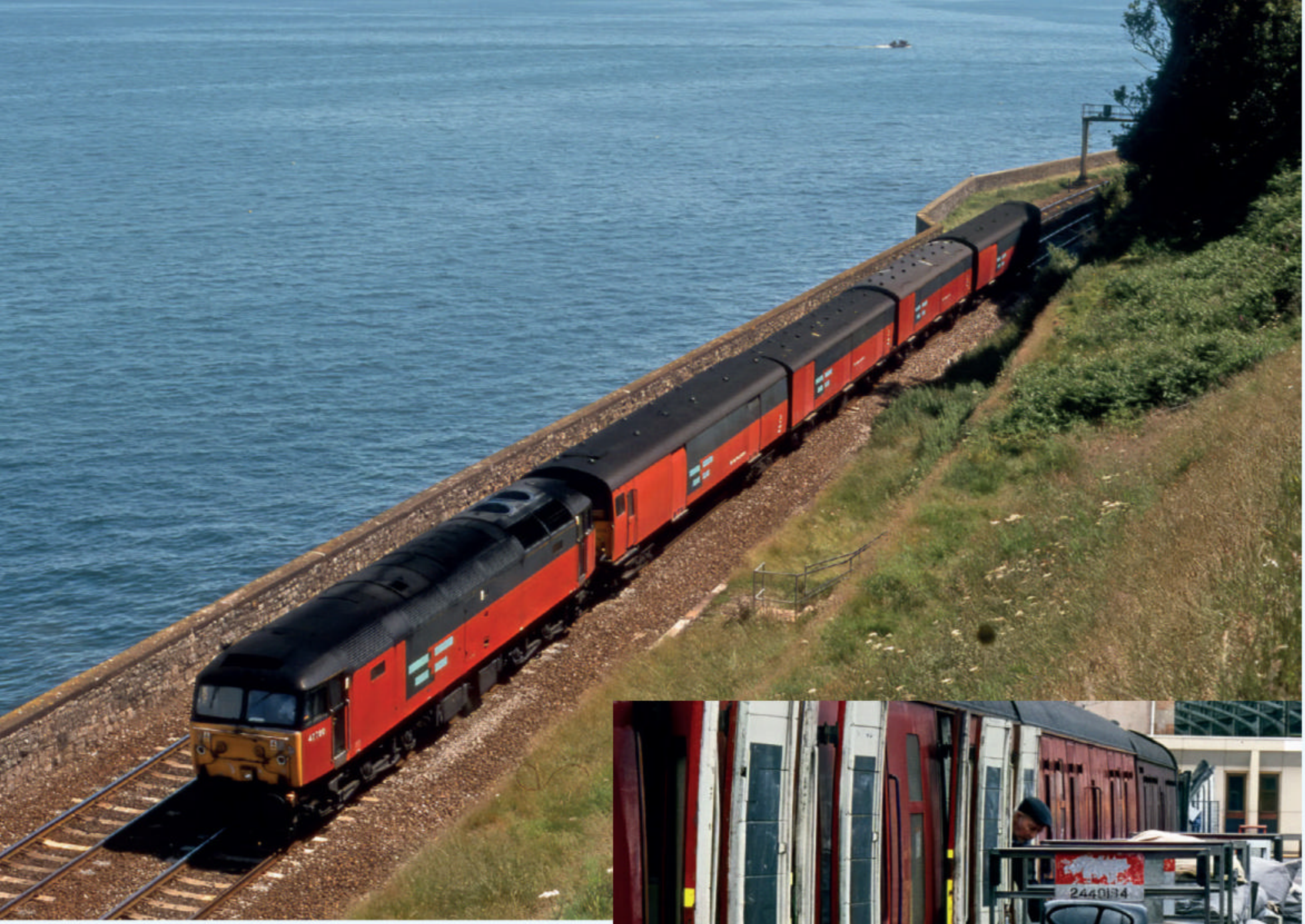
THE LAST POST

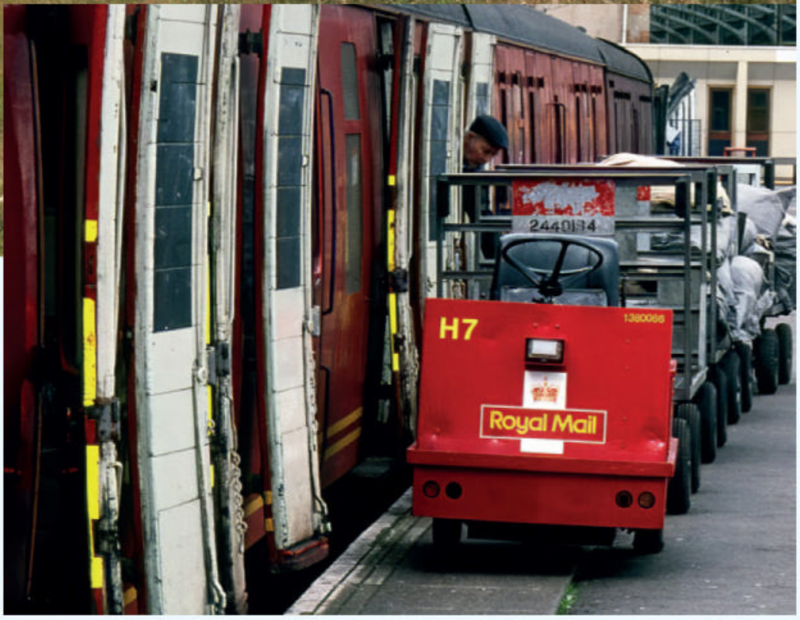
The end of the carrying of the Royal Mail on the railways has been reported before, in particular the demise of the Travelling Post Office services in 2004, but in fact bulk flow mail continued between dedicated 'hubs' in a fleet of new electric multiple units, the Class 325s, introduced in 1995. Even they have now been declared life-expired by the Royal Mail and with their withdrawal in September 2024 the conveyance of 'mail by rail' finally came to an end – or so it seems. **GAVIN MORRISON** took these photographs of mail trains in various forms during the last three decades.

ABOVE: **A mail train in a unified red livery looked a meaningful proposition. Class 47 No.47 777 *Restored* is on the front of the Low Fell (Newcastle)–Plymouth vans approaching the bridge at Burn, on the Selby diversion stretch of the East Coast Main Line, on 21st July 1998. No.47 722 is being hauled at the rear.**

BELOW: **The lasting memory of mail trains might be of their nocturnal activities as post was loaded and unloaded at stations during the dark hours. No.47 532 and Class 90 No.90 019 *Penny Black* dwell under the lights at Leeds City on 17th May 1994.**



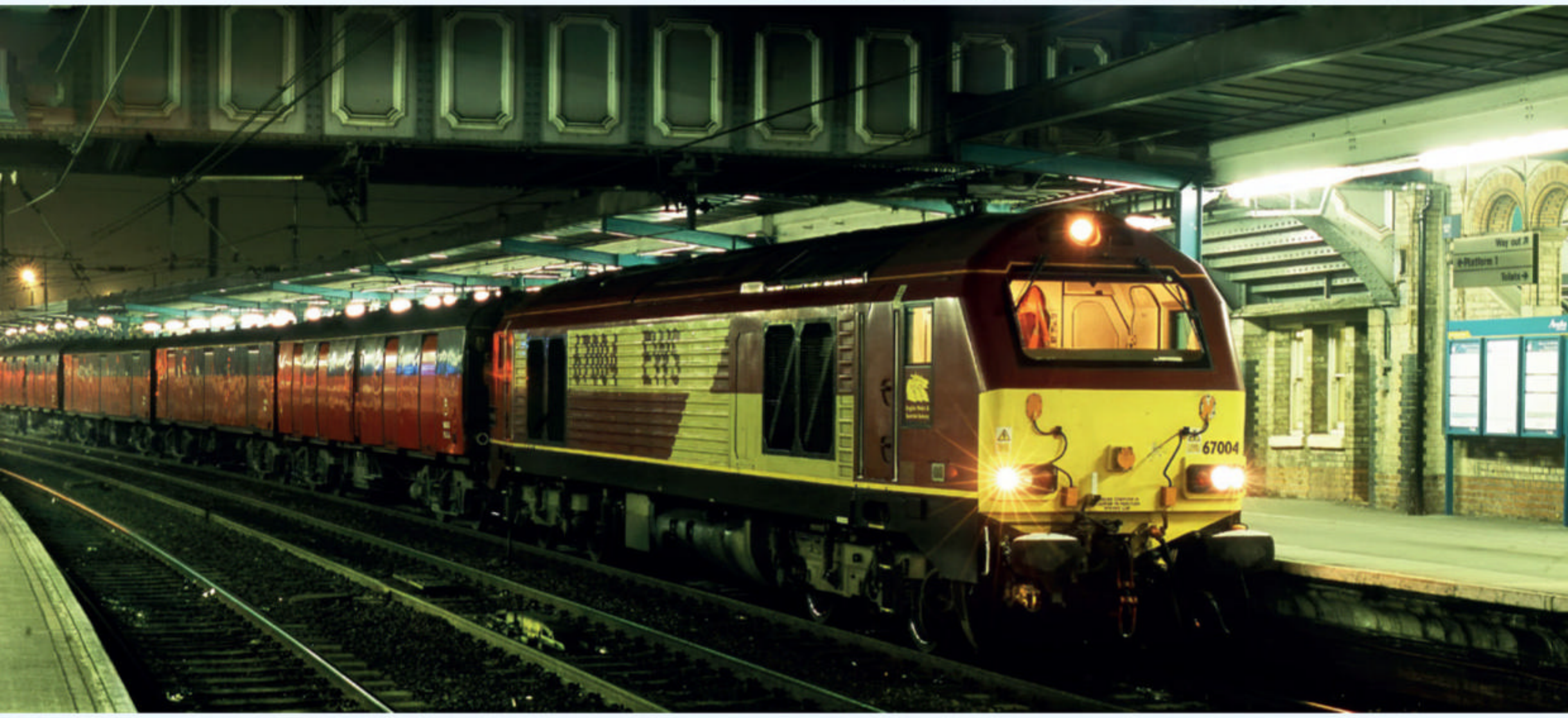


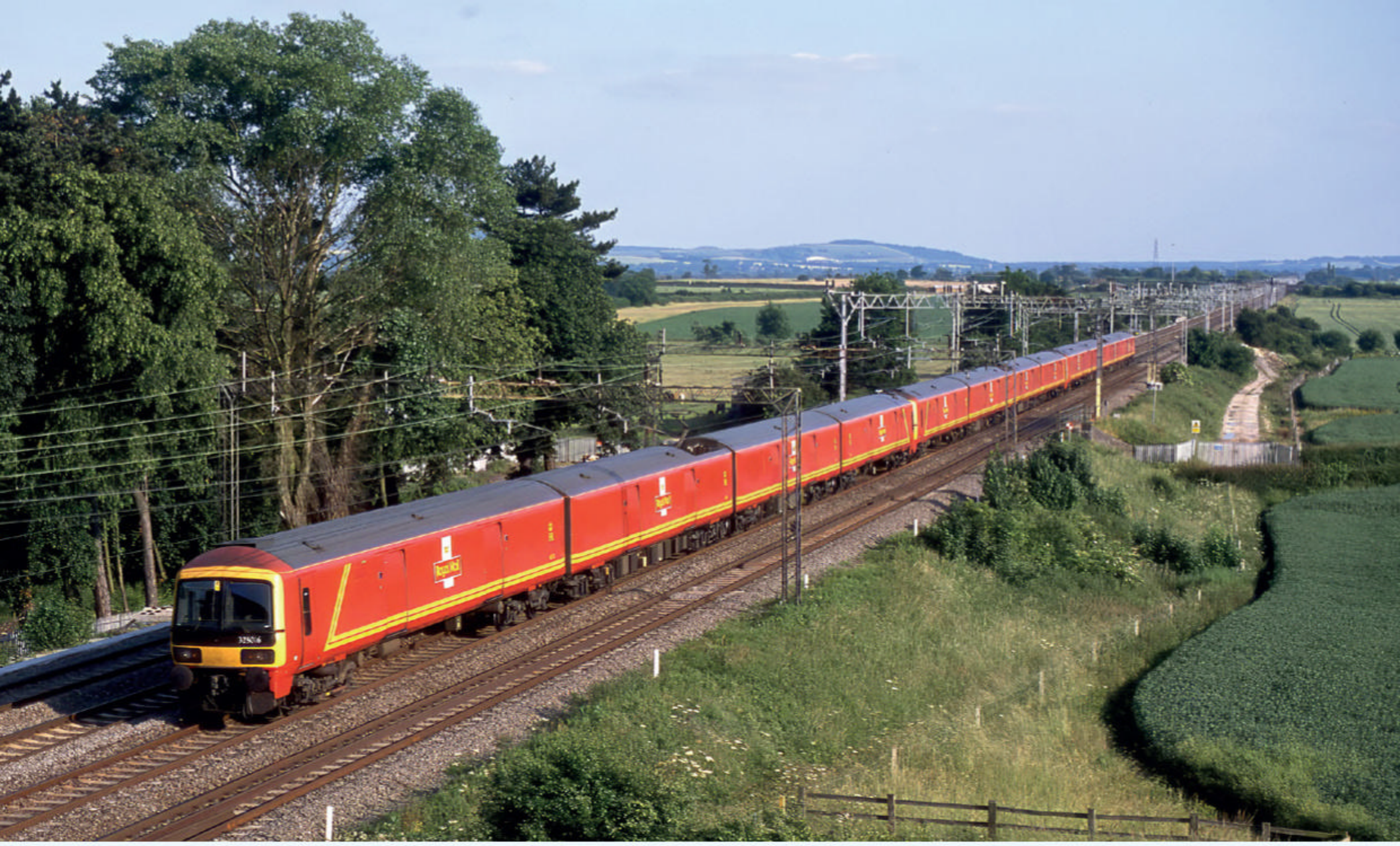


ABOVE: **The mail from the West, aboard the 13.53 from Plymouth, has the sea in a serene mood on 24th June 1999 as it makes its way towards Bristol passing Horse Cove, south of Dawlish, behind No.47 780.**

RIGHT: **Loading the mail for the 'Up Postal' at Glasgow Central on 23rd April 1992.**

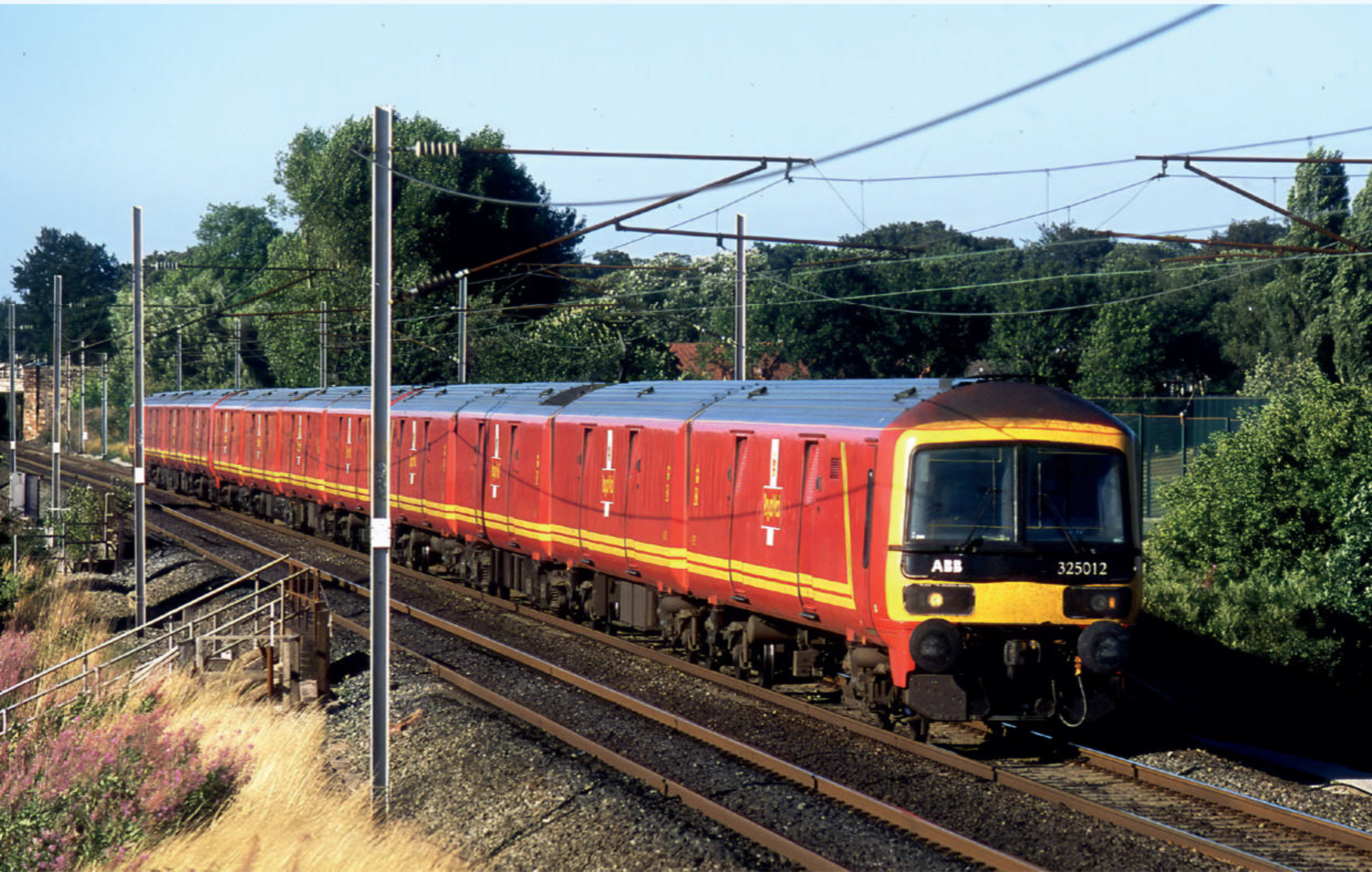
BELOW: **The English, Welsh & Scottish company was the operator of mail trains during its existence in the early privatisation years. Class 67 No.67 004, in the vivid EWS red livery, calls at Ipswich with the 19.50 Norwich–Willesden mail terminal on 21st February 2003.**





ABOVE: **The last manifestation of the mail train came in 1995 with the Class 325 electric multiple units. They were equipped with pantographs for running under the 25kV ac overhead wires and with pick-up shoes for the 750V dc third rail lines. Sixteen four-car sets could be operated in multiple to provide trains of up to twelve cars. In their bright red colour scheme they certainly cut an eye-catching dash, as evidenced by this three-set formation photographed from the Leighton Buzzard bypass bridge speeding north along the West Coast Main Line on 24th June 2003.**

BELOW: **A Class 325 convoy from Shieldmuir (Motherwell) to the Warrington mail terminal nears the end of its run at Winwick Junction on 3rd August 2006. After nearly 30 years of good service, the Royal Mail declared that the Class 325s were life-expired and with no funds to replace them they were withdrawn in September last year. The end of moving mail on speedy trains, instead relying on the delay-infested road network, seems a highly regrettable decision. Royal Mail does say it "will continue to use rail services to transport mail across the country" – though the means of doing so are not specified.**



Readers' Forum

Letters intended for publication should ideally add extra detail to our articles (or offer corrections of course!) and not be too long, consistent with the detail they offer. As always, we are sorry that space and time prevent us from printing them all or sending personal replies. ED.

Mixed Trains

Peter Tatlow's article (January) usefully explained the background to and operation of a 'mixed train' in the UK, a concept which is often misunderstood. It is common, for example, for a passenger train that includes non-passenger-carrying vehicles which are brake fitted or piped (eg parcels or fish vans, horseboxes, milk tank wagons or vans) to be wrongly described as being a mixed train, even though marshalled, signalled and operated as an ordinary passenger train. The true mixed train includes unbraked vehicles in addition to its braked passenger coaches and must be dealt with under the specific regulations illustrated in the article that came into force in the late nineteenth century and have remained almost unchanged since.

That said, the lower picture on page 17 presents an apparent anomaly, in that the train is clearly identified as being 'mixed' but does not comply with the regulations that were well-established by the date of its operation in 1919. If the two vans behind the coach are indeed unbraked (as stated and as their appearance suggests), the obvious omission is a goods brake van in the rear, in which the guard must ride. Indeed, it is not even obvious if there is a guard's compartment in the passenger coach. However, John Lewis has identified the coach as one converted to an auto trailer in 1905 and having its driver's compartment at the far end (with its inward-opening door just visible) in which the guard would ride and could apply the brake if necessary. The omission of the goods brake van does, however, require explanation, especially if this was a regular timetabled mixed train working, as stated.

Nick Stanbury, Tunbridge Wells

I was able to travel on a mixed train in Scotland (Peter Tatlow's article, January) as recently as 24th September 1987. The 18.50 Mallaig to Fort William, hauled by Class 37 diesel No.37 409, comprised six coaches and three empty four-wheel oil tank wagons. The tanks had conveyed fuel oil for the Mallaig-based fishing fleet and being vacuum braked no rear goods brake van was required. In the rear of the last coach the rhythm from the rail joints was 'da-da der–der' reflecting the difference in whee base of the coach bogie and the adjoining wagon! Such workings ceased when Class 156 diesel multiple units took over West Highland services in 1989.

A misconception one encounters occasionally is that trains of coaches plus parcels vans were 'mixed trains'. However, parcels vans were classed as passenger rolling stock and numbered accordingly. They catered for 'passenger rated traffic' – small packages or manufactured items up to a prescribed weight and size carried in the brake compartment of a passenger train, in attached parcels vans, or by dedicated parcels trains, with loading and unloading at passenger stations or parcels depots. If sent as 'goods sundries' such items travelled by freight train, with loading and unloading at goods depots. The carriage rates were lower but the journey time more protracted!

Stephen G. Abbott, Skipton

Peter Tatlow's article (January) sheds light on the subject of 'Mixed Trains" but the caption to a photograph of one such train on the Elvanfoot–Wanlockhead branch perpetuates a common misconception. Whilst that line's summit at 1,498 feet was the highest on a public standard gauge line in the British Isles, from the late 1840s until 1923 it was surpassed by the 1,670 feet attained at Bolt's Law summit on the Weatherhill & Rookhope Railway in County Durham. That was a private standard gauge line built for the Weardale Iron Company, connecting at Parkhead with the Stanhope–Consett line of the Wear & Derwent Junction Railway (which was to survive into the British Railways era). Although intended for minerals traffic, the W&RR also conveyed other goods and for some years provided an unadvertised passenger service between Rookhope and Parkhead for local people in that remote district.

Steven Dyke, Hoylake

The article in January about mixed trains reminded me of the fact that the 'Marlow Donkey', until dieselised in thesSummer of 1962, ran one return trip as a mixed train, around lunch time. One of my "How I wish I'd got round to doing thats" – why did I never get round to making a trip on one of the Donkey's mixed workings? I did see one, inbound Bourne End, passing Spade Oak, and we were once allowed to remain in the autocar when the' 14XX' repaired to the loco shed at Marlow to top up the bunker.

After dieselisation there was an hour-long gap in the timetable to create a path for a freight to run between Bourne End and Marlow. After the withdrawal of freight service it took several years before the 'misisng' train was reinstated.

John Sears, Preston

In terms of 'Mixed Trains', the Deutsche Reichsbahn had an interesting system whereby one could distinguish between a 'GmP' - a 'Güterzug mit Personenförderung' - and a 'PmG' - a 'Personenzug mit Güterförderung'. I am not 100% sure but I assume the former was scheduled as a freight and stopped everywhere for intermediate shunting whereas the latter was mainly aimed for passengers but might convey tail-end freight as well. They would have different train numbers. Of course it was quite common to see four-wheel vans and other freight stock even in express passenger trains if they were technically equipped and had the 'XP' markings.

Rabbi Dr. Walter Rothschild, Berlin

The Manchester Locomotive Society

I write since, as a child, I knew both Harold Bowtell and John Thomas (a prolific railway book writer) through my father, who had also been in The Royal Engineers in India. Harold appears in the group photo on p101, of the February issue and on p102, middle column, it refers in passing in broad terms to his Indian service.

There is an epic tale, almost forgotten now, of the transport nightmares involved in supplying the front then against the Japanese in Bengal and (former) Burma, set out in John Thomas's *Line of Communication: Railway to Victory in the East* published in 1947.

Unfortunately John does not refer to anyone personally in his book except himself,and I only heard Harold talk of Industrial Locomotives, about which he was a great authority.

Please thank Mr. Johnson's nearest and dearest for bringing these names out of the shadows.

Michael Statham-Fletcher, by email

The cheapness of correspondence

One never quite knows what one is going to come across in *Backtrack*. James Graham's 'The Cheapness of Correspondence' in the January 2025 edition is a perfect example. As we move into the year commemorating 200 years of rail travel all sorts of surprising facts may emerge. I was never into stamp collecting but my father was and he had several Penny Blacks. It is fascinating to realise that carrying vast amounts of Post Office mail cheaply early on the very earliest railways might be seen as discouraging passengers to spend their money on tickets, although what has to be taken to account is how widespread was illiteracy, in 1840 33% of men and 50% of women were illiterate. Of course if one was illiterate then a train journey was the only way to get the information to where it was needed, although again if one was illiterate one was probably poor and could not afford a to buy a rail ticket anyhow. I shall be in Surrey at the weekend and going up to central London on the Saturday, which is now the busiest day of the week, a perfect example of one of the headwinds which has buffeted the railways since so any people now work at home.

Michael H. C. Baker, Wareham

2-10-2s in trouble

I read with interest Mr. Atkins's article (January) and must compliment the author on his diplomatic skill in effectively navigating through the rather complex political, economic and technical background in respect of both these potentially successful locomotive types.

There is, however, a misunderstanding in relation to a claim that Ansaldo had stated never to have produced steam locomotives.

The Ansaldo Group of companies has not only produced steam and other locomotives but also many other products related to sea, land and air transport and power generation. The key issue is,, however, that all these varied products were produced by subsidiary companies within the Ansaldo Group. It seems most likely, therefore, that when a request was made for information about the then new steam locomotive supplied to Greece, it was probably made to the wrong Ansaldo Group subsidiary, which quite correctly confirmed that it had never produced steam locomotives. As Mr. Atkins correctly states, the last steam locomotive built by the Ansaldo group were 25 Class WG 2-8-2, locomotives for India in 1956.

Edoardo Tonarelli, Torino, Italy

How Four became One

Another fascinating issue and suddenly one learns so much more about the boardroom intrigues, the high finance and the personal conflicts that led to these large industrial conglomerates being formed. I always wondered why the English Electric works at Thornbury, Bradford, was called 'Phoenix Works' – now I know. It had a short branch to the Laisterdyke–Windhill GNR line – can anyone add more? A Bradford Galleries aerial photograph online shows a very extensive works complex and logic would dictate that at the very least coal was brought in and products taken out but there is no real clue to the actual alignment of a rail connection or where the sidings were – the GNR branch from Laisterdyke ran under Leeds Road a little further to the east, though the cutting has since been filled in; The Thornbury Roundabout was where the BCT 30 trolley buses that came down Leeds Old Road ended and turned round; the old tram depot was (and I believe still is) on Leeds Road. My late father was a draughtsman there in the mid-1950s and we lived a few streets away, and I recall him once telling me, as we stood and admired a 'Deltic' somewhere, "I helped design part of that."

From Wikipedia: "The lack of information on this business's activities could be attributed to its pre-war Admiralty and War Office contracts. On page 102 of a 1917 report of an inquiry into Works Committees, the Bulletin of the United States Bureau of Labor Statistics reported that Phoenix Dynamo was a firm employing about 4,000 employees and was now in addition to its ordinary product producing "miscellaneous munitions supplies. During the war Phoenix Dynamo contracted to the Admiralty to build Short seaplanes. It produced millions of shells, a large quantity of machine tools and the fastest and biggest sea planes and flying boats.] After the Armistice in November 1918 Phoenix Dynamo merged with four other businesses to form English Electric and Phoenix Dynamo became English Electric's centre for electric motor and generator design."

When I lived in Aruba I learned somewhere that 'English Electric in Bradford' also built in 1911 two petrol railcars for the Punda tramway in Willemstad in Curaçao in the Caribbean (though some sources say the Preston works of United Electric made these).

I have found online an April 1977 BR Eastern Region (Southern Area) 'Supplementary Operating Instructions' Amendment booklet which refers on p36 to p121' and states that "Laisterdyke to English Electric Coy. sidings: Amend to R.A. 5. Diesel shunting locomotives only. Locomotives not to pass beyond boundary gate leading to private sidings." This implies the works had their own shunter? As late as 1977? From Wikpedia again: "The section of line south of Idle station was closed in 1964 save a small spur of line into the English Electric Foundry on Dick Lane in Thornbury. The works had their own Ruston & Hornsby shunter with final closure from the works into Laisterdyke in the 1970s." The irony is that I trainspotted around here in the 1960s and never ever found any trace of a railway into The Works. Someone, maybe my father, had told me the private sidings were electrified and the works had their own electric locomotive but clearly by this time it was an R&H 4wD and BR would have used 03 or 08 locomotives. Can anyone add more?

Rabbi Dr. Walter Rothschild, Berlin

The photo of No.20001 on p27 of the

January edition seems to me to be mis-captioned. I think it ought to be Hastings rather than Lewes.

Peter Yarlett, by email

Railways of the North Pennines lead mines

Rob Langholm's splendid article in the January issue leads me to write – because he mentioned the Weatherhill and Rookhope Railway, over which much of the area's lead production was hauled.

That railway appears to have been overlooked by very many railway historians and a passing reference elsewhere in the magazine prompts me to mail you: that passing reference was to the Wanlockhead and Leadhills railway being highest standard gauge line in Britain – something much repeated. The Weatherhill and Rookhope Railway exceeded that line's elevation by more than 150 feet, achieving 1,670 feet at Bolt's Law, which was also the location of Britain's highest loco shed. Perhaps the railway's early closure in 1923 has led to its being overlooked so many times. For many years the railway operated a passenger service with ex S&DR carriages and provided goods services, serving upper Weardale and neighbouring areas for over 40 years until the extension of the Wear Valley Railway to Wearhead in 1895.

Can Rob Langholm be persuaded to research and write a book on this line, a natural follow up to his excellent books on the Stanhope and Tyne and its successors?

Peter Weightman,
Newcastle upon Tyne

Tunnels in the Churnet Valley

May I add a little to Mike Fell's supportive comments regarding Alton station at the end of his piece on 'Tunnels in the Churnet Valley' (*BT* February)? For some reason this attractive station was built in the Italianate style, unlike the Gothic Revival favoured by the Earl of Shrewsbury at whose behest the station was built. It contains an elaborate tiled floor in an unusual geometric pattern, the pieces being early Minton & Co. Over time this had become worn or damaged in places but the Landmark Trust considered that conservation of this historic floor was best served by individual replacement of tiles rather than losing it by full replacement. So they went to a specialist manufacturer in Stoke-on-Trent and procured no fewer than 2,240 individual pieces, in various shapes and colours. The intricate work of fitting the new pieces to match the pattern of the existing floor brought the Landmark Trust the London Underground Craft Skills Award at the 2024 National Railway Heritage Awards.

Robin Leleux, Ilkley

BookReviews

|★★★★★ Excellent|★★★★ Very Good|★★★ Good|★★ Fair|★ Poor|

The Maker of these Marvels – George Stephenson and his Circle of Genius

By R. F. Hartley. Published by Railway & Canal Historical Society, December 2024. Hardback, 400 pages. 60 plates and drawings of which 25 are in colour. 37 maps. £30.00. ISBN 978-1-0686874-0-2. Available from https://rchs.org.uk/shop/

In 23 punchy chapters, Hartley paints a picture of George Stephenson from those who knew him. As he notes in his introduction, George is a difficult person to get to know: little has been recorded of his inner thoughts, and pretty much his entire life to the age of 40 is obscure. In producing this portrait of the 'father of the railways', Hartley draws on the major contributions made to the study of early railways thanks to the Early Railway, and Early Main Line Railways series of conferences since 1998. The 8th conference is being planned for next year.

He firmly places George in his historical context: he was not working alone, but crucially had powerful allies especially at Killingworth. Unlike other collieries it was rich, had owners who were interested in modernising it and who rewarded talent. He was also good at making friends in the right places. These were vital allies in George's obstinate advocacy of the steam locomotive and were transformative in how his life would develop. Without them, George, like his friend Nicholas Wood, could have remained a great but relatively obscure north-country mining engineer.

The George who emerges is not quite the dashing hero of Samuel Smiles who pulled himself up by his own boot straps. Rather, it shows George as a true polymath who was fascinated in the world around him and how it worked: he was quick-whited, fiercely intelligent and with a sarcastic sense of humour. George was quick to see talent in others and encourage them, drawing together a remarkable 'circle of genius'. He was a man with a very strong personality who came to dominate those around him, including, sadly, his own son.

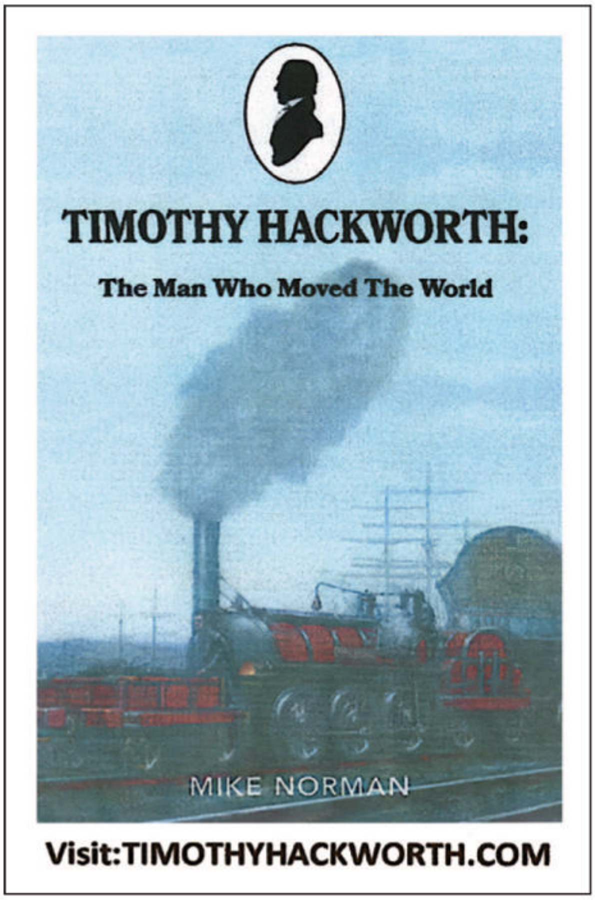
Chapters 1 to 4 outline his early life, such as is known; the Stockton & Darlington and the Liverpool & Manchester are discussed in Chapters 6 to 10, whilst in Chapters 7 to 11 Hartley shows the enormous amount of work as an engineer George got through and sheds new light on the genesis of the Grand Junction Railway. It also demonstrates George's canny attitude and concerns over the several 'railway manias' and resulting bursting financial bubbles.

This, however, is not an engineering history which goes through every nut and bolt, and every survey in detail. Hartley shows George as a competent, empirical engineer who had a systems-wide view of the railway. If the reader wishes to explore engineering history in such detail, they are recommended to read the various proceedings published by the Early Railway Conferences.

The paper and print quality is excellent but the use of a colour plate section rather than having them integrated throughout the text is somewhat old-fashioned. But can be understood on cost-grounds. An extensive bibliography of sources is provided and references can be found at the end of each chapter, but it appears no archival material was consulted. One or two recent texts on Rainhill and the Liverpool & Manchester are absent but these are minor quibbles.

Detailed but never dull, this is an excellent high quality book of which the R&CHS can be proud. A much-needed new, scholarly biography of George and one which is also accessible. It is a worthy and welcome successor to L. T. C. .Rolt's biography of Stephenson *père et fils* of 1960.

★★★★★ **AD**



BackTrack BINDERS AND CASEBINDING

BINDERS

Stocks are now available of 12-issue binders of BACKTRACK in green gold blocked!

United Kingdom (inc. VAT + p/p). **£14.00**

Europe including Republic of Ireland (inc.VAT + p/p) **£22.00**

Overseas outside Europe (inc.VAT + p/p) **£30.00**

Payments for back issues, binders and casebinding should be by cheque payable to 'Pendragon Publishing' and sent to the address below. Card payments can also be accepted by post or telephone (01347 824397 9am-5pm Mon-Fri only) quoting also the last 3 digits of the security number on the back of the card. Allow 28 days for delivery.

CASEBINDING

This service is available again for binding 12 issues of BACKTRACK into hardback form, complete with covers, in green with logo gold blocked on spine and front cover, plus volume and date on spine. Because the work is individually hand-done, casebinding orders are unlikely to be fulfilled in less than two months. All orders for casebinding must be sent in after the beginning of January and by the end of March. Orders can only be accepted from within the UK. Please send copies, securely packed, to the address below – using only Royal Mail Standard Parcels, please.

United Kingdom only (inc. VAT + p/p). **£75.00**

PENDRAGON PUBLISHING . PO BOX NO.3
EASINGWOLD . YORK . YO61 3YS . UK

ADVERTISE in BackTrack

BackTrack, with its increasing sales and subscription numbers, is now firmly established as Britain's leading railway historical journal and is the ideal place to advertise!

If you have books, magazines, videos, railwayana, exhibitions or special events to advertise, why not consider Back Track?

Rates available for eighth, quarter, half or full pages, colour or mono, with reductions for multiple month bookings. Contact the Editor on **01347 824397** for details or check on our website: **www.pendragonpublishing.co.uk**

PENDRAGON PUBLISHING
PO BOX No.3, EASINGWOLD. YORK. YO61 3YS.
pendragonpublishing@btinternet.com

Colour-Rail

150,000 images on line to buy as prints or downloads.

All at www.colour-rail.com

Looking for a good home for your treasured negatives and slides?

Then e-mail colourrail@aol.com or write to
558 Birmingham Road, Bromsgrove, B61 0HT

The Railway & Canal Historical Society

Railway History For Everyone

Join us to share your interest and explore our rich transport history

Membership is only £25 per annum

Go to www.rchs.org.uk *or* scan the QR code

Or by post to Andrew Wager, Membership Secretary,
Hollow Croft, Church Lane, Thorpe, Ashbourne DE6 2AW

You can get all this and more:

- Journal and regular News Bulletins
- Lectures at regional centres and by Zoom
- Walks and visits to historical sites
- Website access to 2,000+ Society publications
- Online Media Archive of 15,000+ images
- Facebook page and on-line chat room
- Special Interest Groups for specific transport aspects

Join our network of enthusiastic members to pursue your historical interest

The R&CHS is a company (no. 922300) limited by guarantee and registered in England as a charity (no. 256047)

Subscribe to BackTrack

Why not join the growing list of BackTrack subscribers?

- **BackTrack subscribers receive their copies ahead of the due publication date – straight from the press!**
- **Assured delivery every month – no need to miss an issue.**
- **Insurance against any price increase during the life of the subscription.**

UK £65.00
Europe (inc. Republic of Ireland) £110.00
Overseas (outside Europe) £125.00

SAVE WHEN YOU SUBSCRIBE BY DIRECT DEBIT*

☐ **£60 per year or** ☐ **£5.00 monthly!**

*UK SUBSCRIBERS ONLY PLEASE TICK AS APPROPRIATE

Instructions to your Bank or Building Society to pay by Direct Debit

DIRECT Debit

FOR WARNERS GROUP PUBLICATIONS
OFFICIAL USE ONLY
This is not part of the instruction to your Bank or Building Society.

Originator's Identification Number: 942240

Bank/Building Society account number: ________

Reference Number: ________

Name and full postal address of your Bank or Building Society.

Bank/Building Society
To: The Manager
Address
Postcode

Signature(s) ________

Date ________

Name(s) of Account Holder(s): ________

Branch Sort Code: ________

Instruction to your Bank or Building Society

Please pay Warners Group Publications Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Warners Group Publications and, if so, details will be passed electrically to my Bank/ Building Society.

Name ....

Address ....

....

....

By Post: Backtrack Subscriptions Dept., Warners, West Street, Bourne. Lincs. PE10 9PH. Sterling cheques payable to 'Pendragon Publishing' or quote card details inc. expiry date, issue number (if applicable) and 3-digit CSC number.

By Phone: Ring 01778 392024 for BackTrack hotline ***or*** Fax 01778 421706.

By Email: subscriptions@warnersgroup.co.uk

Online: https://www.mymagazinesub.co.uk/backtrack

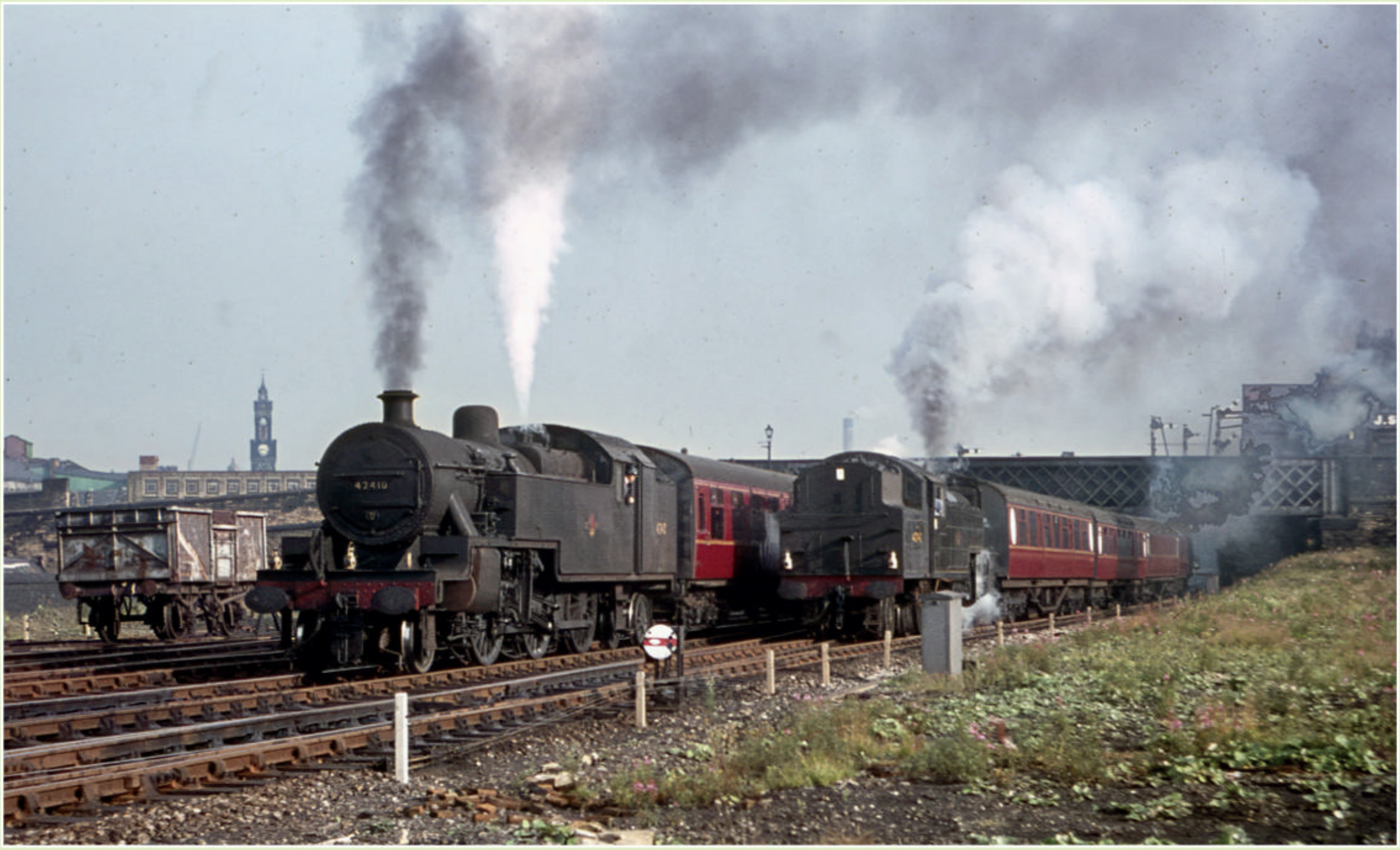
For Digital Edition subscriptions go to www.pocketmags.com

The **NEXT ISSUE** of **BackTrack** will be available on **20th MARCH**

BRITAIN'S LEADING HISTORICAL RAILWAY JOURNAL

BackTrack

WWW.PENDRAGONPUBLISHING.CO.UK



A BRADFORD EXCHANGE

Two versions of the LMS Class 4 2-6-4 tanks encounter each other at Hall Lane, south of Bradford Exchange station, on 31st August 1964. Running bunker first, Fairburn engine No.42142 is attacking the 1 in 50 climb out of the station with the Bradford through coaches of a Leeds–London King's Cross express, passing Fowler tank No.42410 (one of the last batch of these with the Stanier side-window cab) as it waits to reverse some carriages into the terminus.
(Gavin Morrison)

PENDRAGON PUBLISHING

RECORDING THE HISTORY OF BRITAIN'S RAILWAYS